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# *The Status of Excavating in Egypt and the Sudan*

A RECENT READING OF JUDGE CHARLES DE VISSCHER'S ESSAY ON *International Protection of Works of Art and Historic Monuments,* of which a translation into English by Miss ARDELIA HALL was issued by the Department of State in Washington in June 1949, has induced the writer to put on paper a few ideas based on his own experience. In a short section on the legal controls applicable to excavations, Judge DE VISSCHER takes up the recent history of such regulations in Italy, Greece, Iraq, and Spain, but passes over without discussion conditions in Egypt, and does not mention the Sudan.

In conformity with established practice in the countries just mentioned, the Egyptian Government quite properly claims the right to control excavation, not only by its own nationals, but also by foreigners. Permission to excavate must be obtained from the Department of Antiquities, and has been granted in recent years only to properly qualified archaeologists as the agents of scientific or scholarly organizations of standing. All movable objects found must be submitted to the government's representatives for inspection, and may be claimed for incorporation into Egypt's national collections without compensation. The Government may, at its sole discretion, permit the foreign excavator to export such of his finds as are not considered to be necessary to the national collections.

While these conditions are fully as generous as those imposed by most other countries, they have in recent years resulted in almost total cessation of foreign excavating in Egypt. Government officials generally have been interpreting what was necessary to the national collections in such a way that the foreign excavator has been granted little or nothing of museum value; and since in most cases he has worked with funds obtained in the hope of adding to museum exhibits in his home country, his supporters have been progressively withholding the financial grants which have made his work possible. In following this policy Egypt is, of course, entirely within her rights. Yet the past three-quarters of a century has seen the growth of the great Cairo Museum from almost nothing to its present high distinction very largely as the result of the work of foreigners—French, Italian, German, Austrian, British, American, and others. Scholars of these nationalities are also in great measure responsible for our present knowledge of Egypt's mighty past.

Egypt now takes over full responsibility, not only for carrying the financial burden of future excavation, in the past so largely borne by others, but for the development of a group of Egyptian scholars who shall maintain the high standards set by the best of their predecessors of other nationalities. In this Egypt faces a heavy task, to which is added the responsibility for safeguarding and preserving the magnificent monuments which form so large a part of the attraction which brings the lucrative tourist trade to her doors every winter. This calls to mind a menace which has of recent years been much in the thoughts of those familiar with these problems: the threatened undermining of the monuments by the rising level of subsoil water in the Nile valley due to the development of modern irrigation. It is, therefore, a matter for profound regret that the talented Egyptian engineer-archaeologist ABDESSALAM M. HUSSEIN, who had been devoting himself to the problem on behalf of his government, should have met his death through illness in the full tide of his energetic labors.

In view of the changing picture outlined above it is the writer's belief that it is time for European and American scholars to review the situation and re-orient themselves vis-à-vis their Egyptian colleagues. We cannot, even if we would, return to the former state of things. Egypt has taken over control of excavation, and in doing so she is but following the practice of other countries with great archaeological treasures buried

in their soil. If the foreign scholar is devoted to the advancement of learning he must be ready, as he has been for many years in Greece, to work in Egypt without thought of removing anything material from that country, and to offer to his Egyptian confrères such pooling of knowledge and cooperation in work as will be helpful in the common interest.

That scholars generally will be ready to do this there can be little doubt: the real difficulty in such cooperative activity will be financial. Work in the past, by Americans at least, has with few exceptions been supported by museums seeking to increase their collections. For the future, financial backing can hardly be expected in substantial amount from such sources: it should be sought rather from universities and learned societies, as it is in Greece, where the motive is the advancement of learning and the training of the younger generation of scholars rather than the acquisition of objects. A hopeful sign in this direction is the formation of an American Research Center in Egypt, which, if it can obtain sufficient practical support, will serve as a focus for American, and indeed international, collaboration in scientific work in that country.

IN THE ANGLO-EGYPTIAN SUDAN the situation as regards antiquities and excavation is somewhat different from that in Egypt. The control of foreign excavation is equally complete, but the division of finds has in practice been more generous from the point of view of the excavator. Yet, despite the existence of many sites known to be important, scientific excavation progresses very slowly. This fact can be attributed in part to the inaccessibility of many sites and to the high cost of importing trained laborers from Egypt, but it is also the result of some fluctuations in government policy which have at times led to a reluctance to granting the necessary permits. The Sudan Government is very cognizant of its responsibility for the preservation of its ancient monuments. It is a poor government, struggling to improve the economic condition of a primitive and relatively sparse agricultural and pastoral population. It has hitherto been able to afford neither an adequate staff of antiquities officials, a proper museum building in Khartoum, nor funds for the protection of monuments throughout the country.

As a result of these conditions the government would be unable properly to care for and make available for study such movable finds as would fall to its share from excavation, nor could it undertake the necessary protective work on the sites to prevent the rapid deterioration of the standing monuments which would be exposed. It is to be noted that throughout the northern Sudan the building material anciently employed was a particularly soft and friable sandstone which, under the abrasive effect of wind-blown sand, deteriorates with great rapidity, so that this problem is a far more serious one than in Egypt proper.

In view of these considerations the authorities in Khartoum have at times taken the position that until they are able to meet their obligations for the care and preservation of antiquities more adequately than is now possible, it is better that these be allowed to remain safely unexcavated. Two or three years ago the Sudan Antiquities Department was inclined to take the position just outlined, but it is believed that at present its attitude has been somewhat modified. Any thoughtful archaeologist must honor the Khartoum authorities for their sense of responsibility, while hoping that they will bend every effort to remedying as soon as possible the situation which causes them anxiety.

DOWS DUNHAM
*Museum of Fine Arts, Boston*

December 16, 1949

# GREEK ARTS IN GREEK DEFENSES

## By Robert L. Scranton

*Born in Alliance, Ohio, and a graduate of Mt. Union College (A.B., 1932) and the University of Chicago (A.M., 1934; Ph.D., 1939), Robert Scranton was a fellow at the American School of Classical Studies at Athens in 1934-38 and 1946-47, and returned in 1949 for special investigations at Corinth. His major work on Greek walls was done largely during his first period in Greece, when he also helped excavate the fortifications on the Athenian Pnyx. He has taught at Illinois College and Vassar, and is now Associate Professor of Classics at Emory University in Georgia.*

Greek settlements usually arose near the foot of some rocky height, which was crowned by fortifications constituting a citadel of final defense, as at Orchomenos in Boeotia.

Sometimes particular circumstances created a community at a distance from such striking elevations, and the best available rise in ground was heavily fortified. The acropolis at Parabola in Aetolia, for example, shows ruins of many periods. Among them now stands a church.

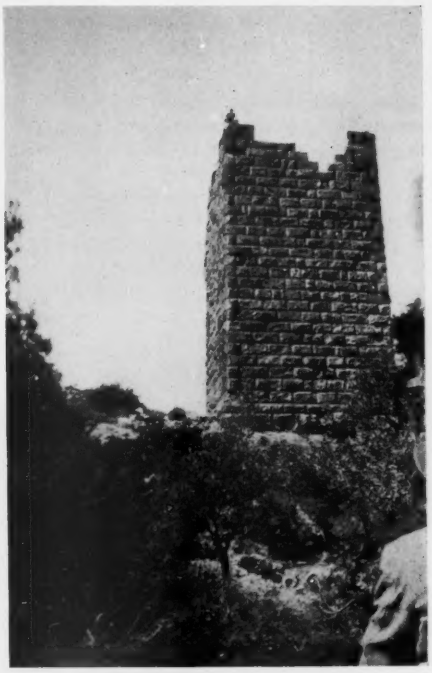
Strongly defended positions occur, too, on isolated hills commanding important roads. The fortress at Eleutherae, guarding the pass from Attica to Boeotia, was so important as to assume the proportions of a small town; but essentially it was merely a garrison post.

Fortification was an art in many ways. Not the least was in the cutting of the stone and the design of the masonry itself. Many styles of masonry can be discerned, and some were popular during different periods so that they offer evidence of date.

Thus on an all but nameless hill in Phocis the tumbled ruins of a town wall, torn apart by the roots of trees, show by the curvilinear design of the blocks that it was built in the sixth century B.C., before the Persian Wars.

At Oeniadae (below), in Akarnania, the rectilinear polygonal shape of the blocks of part of the wall dates it in the fifth century, while the different masonry of the towers suggests that they are from a later renovation. The more intricately shaped blocks were cut to fit by bending a strap of lead along the edge of a finished block and transferring its curve or angle to the block which was to adjoin it.

Illustrations from photographs by GEORGE BEAN, NATHAN DANE, STERLING DOW, ROBERT SCHLAIFFER, DOREEN CANADAY SPITZER, MARY FOLSE, and the author and his wife.



The finely precise rectangular ashlar masonry of the tower at the corner of the fort at Aegosthena, in Megaris, dates it from around the end of the fifth century B.C.

In the Peiraeus, the harbor city of Athens, one can see the results of a century of military progress. In one tower, at the bottom is preserved ashlar masonry with purposefully roughened face; above it are courses of smoothly dressed blocks with drafted edges; and at the top are smooth blocks with beveled edges. These represent periods of construction which can be dated, historically, in the first, seventh, and last decades, respectively, of the fourth century.

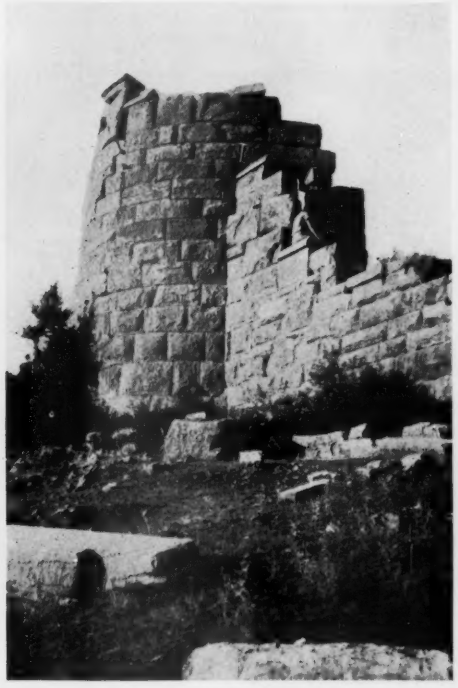
In the Hellenistic period, art in masonry like other kinds of art strove for novel effects. Thus the wall at New Pleuron, in Aetolia, is composed of courses each designedly different in height. This arrangement would be more difficult to work out than might seem at first thought, for blocks of various sizes would have to be sorted and trimmed to fit the various courses.

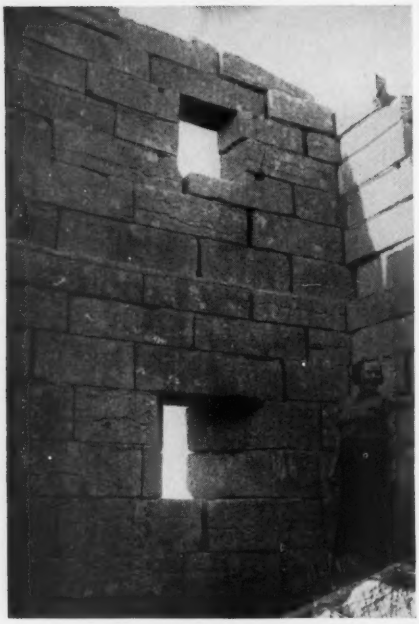
In other characteristically Hellenistic walls, we may occasionally see the old polygonal masonry revived, but dramatized with specially treated edges on each block. This occurs on ornamental masonry in Greece, and in Anatolia, as at Caunus, even on fortifications.

Another sort of art shows in the devices of military craft. In the archaic period few towers were used, but walls were laid out on a zigzag plan with salient angles flanking adjoining stretches of curtain. Soldiers standing on the projecting angles could shoot, from the side, anyone approaching the wall.

The wall at Samiko, in Elis, though probably dating from the fifth century, displays the projecting angles characteristic of archaic foundations.

The fortifications at Messene, in Messenia, built in the early part of the fourth century, show the later technique of defense in a fairly developed way. The wall was lined with towers—round, square, and other shapes—connected by walks along the top of the curtain, protected by battlements. The shape of the tower would be dictated by its position and its purpose. Some were simply observation posts, or to provide positions from which to enfilade the wall; others were for artillery, storage, barracks, and other special purposes.





Inside, the towers might be several stories high, with wooden or even stone floors. Various kinds of apertures served as windows for observation or firing projectiles. Those on the lower stories in particular might be narrow on the outside, but wider on the inside, to provide maximum visibility with minimum exposure. Sometimes the towers were roofed over, sometimes they were open to the air with crenellated battlements.

Two of the well preserved towers at Messene illustrate these types, one of each. That on the left shows two windows and the ledge on which a floor rested, and was originally roofed; that on the right was roofless, and preserves traces of the original crenellations. Additional towers interrupt the wall stretching away into the distance.

There were wooden stairways inside the towers, but the ascent from the ground to the parapet walk on the curtain was usually of masonry. The bottom steps from such a stairway behind the wall in the Peiraeus are well preserved, and show also the great care which stone masons might exercise on their work.

The preserved part of the two top steps in the picture is actually part of the wall-block adjoining, with carefully roughened surface. The surface of the step-block against which its neighbor was to fit is treated in the same manner that was used to give perfect joints to masonry in great temples.

An important part of the defensive system was the manner of entrance to the city from the outside. City gates were protected with every possible care.

In prehistoric days the Mycenaean builders of Tiryns, in the Argolid, relied for safety on long passageways between towering stretches of wall, with doors blocking the passage at intervals. Tiryns continues to be one of the most spectacular sites in all Greece.

The same system was sometimes followed in early classical times. The curious wall which blocks the pass between Athens and Eleusis, dating perhaps from the seventh or eighth century, is penetrated by a series of narrow passages which curve through the thickness of the wall in arcs of a full quarter-circle. It has been conjectured that this unusual system was devised especially against chariots or cavalry.

The grassy ruins of a town near Epidaurus show a gate flanked by a round tower on one side, a square tower on the other.

Among the few examples of arched construction in Greece are the gates of the cities of Akarnania, such as Oeniadae, which probably dates from the fifth century.

In classical times, gates protected by towers became standard. Often an important gate consisted of a court with a relatively narrow opening between towers, and an inner opening closed by an actual door made of heavy timbers. The entrance itself might be especially ornamental.

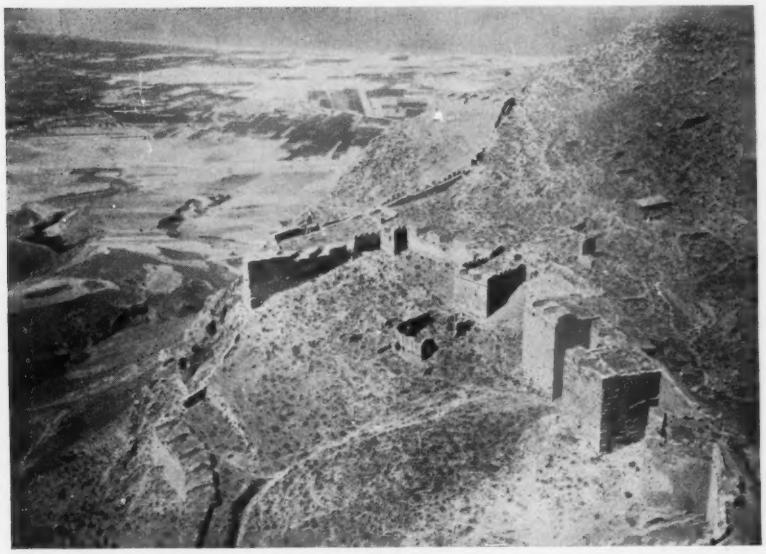
The most important gate at Messene (above) was a circular court with doors inside and out; the scale of the tremendous fallen lintel is apparent from the human figure standing beside it.

On the other hand, postern gates might be found along the wall, consisting simply of plain openings easy to defend because so small. The triangular top of the postern at New Pleuron is an unusual feature.

An important military, engineering, and artistic venture, wall construction was also a matter of public works and administration. Several inscriptions which give specifications or record accounts for these great building programs are preserved.

On one of the blocks from the Peiraeus walls is preserved an item from one of these accounts. It records payments for masonry, in the archonship of Euboulides, 394/3 B.C.

The enduring quality of this workmanship is shown not only by the survival of ruined fragments in spite of the destructive activity of man, plants, and weather, but by the fact that many walls remained useful far into the Middle Ages. The mediaeval gates of Acrocorinth are essentially additions in rubble-concrete to classical construction. A great variety of battlements, towers, bastions, and other devices, show that the system continued in use almost until modern times, although constantly being remodeled to keep pace with new weapons from the age of arrows to that of cannon.



# THE LACANJA VALLEY

The Miguel Angel Fernandez ruin is an imposing big site of many mounds and platforms, with five standing buildings. It is not far from the point where the old Tzendales trail crosses the San Pedro river. It may have been seen in the 1890's by the mahogany workers Naranjo and Gonzali. These gentlemen made their discovery known to Maler, who published it "sight unseen." Messrs. Frey and Blom hunted unsuccessfully for this ruin in 1943 and 1944. It was shown to me by a Lacandon Indian in November of 1945. The photograph reproduced above shows the largest and best preserved building.

## By Giles Greville Healey

*The Lacanja Valley, in Chiapas, Mexico, runs roughly parallel to the Usumacinta river. The cross-country distance between the Lacanja river and the Usumacinta can be from three to six mule riding days. I noted in 1945, and reported, that the Lacanja river bypasses the Lacanja lake to the east. Most maps show that the Lacanja river enters the Lacanja laguna.*

*The Lacanja Valley seems to have a fairly high ruin density. During my travels through the Lacanja Valley in 1945, 1946, and 1947, I was shown, by chicleros or Lacandon Indians, some twenty-one Maya sites: a short description of one of them, Oxlahuntun, has already appeared in* ARCHAEOLOGY 1 (1948) 129-133. *The Maya frescoes at Bonampak, which I was the first to see, have already been amply published.*

*The site names given here are in most cases those suggested by the Instituto Nacional de Antropologia of Mexico. Some confusion has since arisen as several sites have been "ungratuitously" renamed by people who have followed my footsteps.*

With the Lacandon who showed me the Miguel Angel Fernandez ruin we walked for about three hours to the north. At the foot of the slope and on a hill facing the Lacanja river there are three ruins, the best preserved of which is shown in the photographs reproduced above. This building may be the highest in the Maya area; it rises over 250 feet from the valley floor. The front is of cut stone at a 60-degree slope, though its back is formed by the hill on which it rests.

I have named this ruin "The Bee" (El Abeja) for the bee which can be seen in fresco on its interior wall, much like the bee seen in the head-on position in the Tro-Cortesianus codex. Linton Satterthwaite, of the University Museum, University of Pennsylvania, and I are seeking permission from the Mexican government to photograph these frescoes—a difficult undertaking, inasmuch as a thick coating of lime has precipitated over the frescoes.

In the interior of the Bee ruin (upper right) a Lacandon Indian stands against a wall whose upper part still shows traces of fresco paintings. The black lines on the wall are ant runs, not cracks in the masonry. In the foreground are fragments of God Pots left by Lacandons who worshiped here years ago.

The ruin shown on the right is the Catherwood ruin, of the Stephens and Catherwood twin ruin complex, near the junction of the Rio Cedro and Rio Lacanja. This ruin, shown me by a Lacandon Indian, stands on a low pyramid. The name is that chosen by the Mexican Instituto de Antropologia.

The Stephens ruin, which is only a few hundred yards south of the Catherwood, was shown by the chiclero Rivera to Bourne and Frey. I found thirteen stelae at this site. The Stephens has been named the Lacanja after Maler's Lacanja. This is very confusing, as the Lacanja is across the river at the exact location designated by Maler. Frey agreed that it be called the Stephens to please the Instituto.

Stela no. 1 at the Stephens ruin has a three initial series date of 9.8.0.0.0. Left to right: Giles G. Healey, Jose Pepe, Raul Pavon Abreu of the Campeche Museum, and Nabor, April 1946. Jose Pepe and Nabor are Lacandon Indians.

Above, a building at La Lucha ruin, a day's ride northwest of the landing field at El Cedro. It was discovered in 1941, by chicleros working for Don Oscar Franke, and rediscovered by the chiclero Canul, shown here at the right. La Lucha is an L-shaped complex of ruins on small hills, overlooking a large plaza below. Some of the buildings have truncated altars such as we found at Bonampak.

Upper right, the interior of ruin building no. 1 at La Lucha. The Gothic effect of this Maya vault stems from the fact that the left-hand walls have moved inwards, probably because of the action of the roots of a large tree that grew on the roof.

Right, the Maudslay ruin, lying west of the west bank of the Lacanja lake, and two Lacandon Indians standing in an entrance. The back wall has frescoes showing only parts of painted fishes. The only lintel in place in its doorway is badly cracked and is undecorated.

Fig. 1. Trindhöj.

Fig. 2. Borum Eshöj.

Men's costumes.

# BRONZE AGE CLOTHING PRESERVED IN DANISH GRAVES

## By Johannes Bröndsted

*Johannes Bröndsted is professor of prehistoric archaeology at the University of Copenhagen, Denmark, and one of the most distinguished prehistorians in Europe.*

THE WOOLLEN GARMENTS AND CLOTHES from the earlier part of the Danish Bronze Age, dating presumably from a time shortly before 1000 B.C. and now belonging to the outstanding treasures of the National Museum, Copenhagen, are priceless direct witnesses of the primitive Scandinavian textile art as it presents itself after its earliest development, not yet quite free from dependence on its models.

What then were these models? Apparently skin costumes. Facing the fact that such skin clothes have never, up to now, been found in Danish Stone Age or Bronze Age graves or settlements, this idea of skin types as models for the Danish woollen costumes is, so we must admit, nothing more than a theory, though, as I think, a very sensible one.

To this we shall return below. First let us give a brief summary of the Danish Bronze Age textile

finds, with some illustrations from the collections of the National Museum.

All the textiles come from the so-called "bole-coffins," i. e., split and hollowed pieces of oak trunks used for the interment of adults or children and placed on stones in the bottom of large earthen (turf) barrows or grave mounds. Under certain circumstances, hard layers of clay in the mound held enough water, more or less, to preserve the coffin from mouldering away and so preserve its contents of organic matter, textiles as well as wooden objects.

In seven cases, all from barrows in the Jutish peninsula (Jylland) which forms the western (greater) part of the Danish kingdom, a complete woollen dress in this way was saved to posterity, so that now the National Museum in Copenhagen possesses four complete men's costumes (from the following barrows: Borum Eshöj—2, Muldbjerg, and Trindhöj) and three complete women's dresses (Borum Eshöj, Egtved, and Skrydstrup). In addition, four other grave finds (Guldhöj, Jels, Dragshöj, Toppehöj) have yielded different parts of men's costumes.

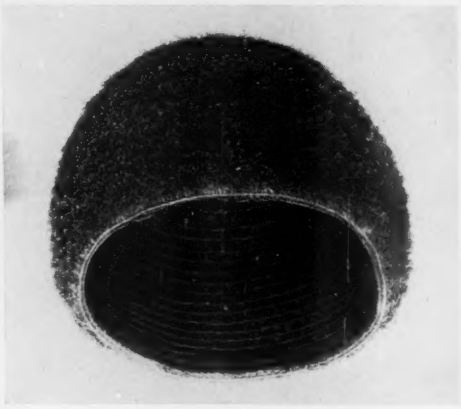


**Fig. 3. Man's cap, Muldbjerg.**

This much about the archaeological material.* Now we proceed to the famous dresses themselves.

In FIGURES 1 and 2 are shown two men's costumes, from Trindhöj and from Borum Eshöj. The dress consists of two main pieces, the cloak and the gown. The loosely hanging shoulder cloak, of oval or bean shape when outstretched, is a rather large piece of fabric, the Trindhöj specimen being a little under two and a half meters in length, 1.25 meters in breadth. The sleeveless gown, used as an undergarment, consists in the Trindhöj costume of several pieces sewn together and has two narrow flaps acting as suspenders and fastened on the back by means of leather straps and some sort of round bronze buttons *(tutuli)*. In the Borum Eshöj dress, however (FIGURE 2), the gown is more primitive, in fact nothing more than a kilt leaving the chest uncovered. A woven band (FIGURE 1) or a simple cord (FIGURE 2), used as a belt, held the gown together.

Further, as belonging to the man's costume we have to mention the round woollen cap presenting itself in two types, a rather tall one (FIGURE 1) made of a round top piece with a cylindrical side piece sewn on, and a more semicircular one (FIGURE 3) carefully and well done with lace stitchings inside and a covering pile of short woollen threads outside, a little masterpiece.

The finds have yielded a few strips of cloth put on the ankles and the feet as some primitive kind of stocking and, in one grave only, a bit of a cloth shoe. Thus, the dress of a fully equipped Bronze Age man comprised also stockings and shoes (cloth or leather). Finally, one noteworthy though negative fact should be stressed: No trousers whatever were known.

AS REMARKED ABOVE, OUR knowledge about the woman's costume in the Bronze Age is based upon three grave finds: the Egtved and the Skrydstrup graves, each containing the remnants or traces of the corpse of a young girl about twenty years old, both of which were thoroughly investigated by the staff of the National Museum, Copenhagen; and the Borum Eshöj find, the grave of an elderly woman (in the fifties), found many years ago and not scientifically excavated. We start with the Egtved girl.

In FIGURE 4 we are looking at the costume of this young person. As a fillet around the short-cut hair she used a simple three-ply cord. Then comes the jacket with short sleeves and with some strips of cloth sewn on below to lengthen it all around. Such a jacket was found in each of the three women's graves and so we must believe that it was a regular part of the Bronze Age woman's dress.

Round the waist the Egtved girl had a woven girdle ending in a tassel, the purpose being to hold the jacket together and to carry the circular bronze disc, this characteristic ornament of the Danish Bronze Age woman.

The most startling part, however, of the Egtved dress is the corded skirt, shown in FIGURE 4 and in greater detail in FIGURE 5, a refined piece indeed of textile art and quite new to the archaeologists when the find was made in 1920. Since then we have been able to find several traces of such a skirt type in other

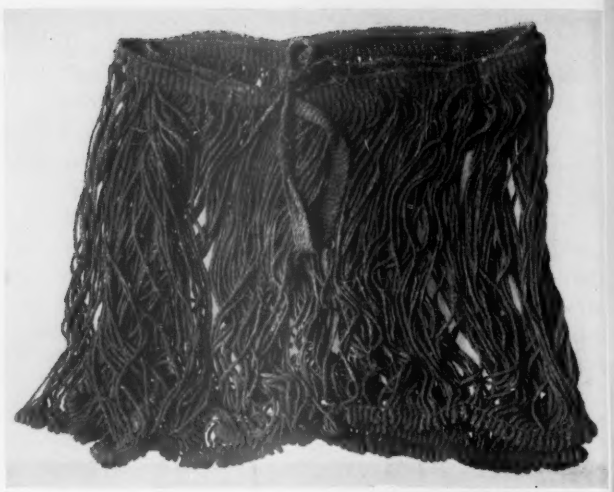


Fig. 4 (left). Girl's dress, Egtved.

Fig. 5 (above). Girl's corded skirt, Egtved.

Fig. 6.
Bronze statuette
Woman with corded skirt
Faardal

Bronze Age graves; and the little figurine of bronze from Faardal (FIGURE 6), dating from the middle of the later Danish Bronze Age, shows how this corded skirt was still in use several centuries after the time of the Egtved girl.

This skirt is made of cords hanging down from a woven girdle more than two meters long, both ends of which are free to be tied together, as the illustrations show. The cords are held together at the bottom by a horizontal twisted string just over the loops. This skirt was wrapped twice around the waist, resting on the hips, and is about 0.40 meters long, thus reaching almost over the knees. That this is a most charming piece of clothing for young girls was shown by one exhibited in Copenhagen on a living model (FIGURE 11).

But the young Bronze Age girl in Denmark did not always wear the short corded skirt. This was learned from the last of three finds of women's costumes, namely Skrydstrup. As the coffin of this grave was very much decomposed it became necessary to transport the dead body, lying calm and untouched in its plastered-up frame, from the grave mound in Jutland to the Copenhagen Museum. After the removal of two covering woollen blankets the Skrydstrup girl appeared (FIGURE 7). She did not wear the short corded skirt; on the contrary, she had a very large piece of cloth wrapped around the body, reaching from the waist to the feet. This "long skirt" was in fact extremely long: four meters, to about one and one half meters in breadth. The question which we shall touch upon later is this: Was this great piece of cloth, sewn together and laced in by a woven girdle to which was tied a comb of horn, a real long skirt worn by the living woman, or was it a sort of swaddling-cloth only for the dead body?

The jacket of the Skrydstrup girl was nicely decorated with embroideries on the sleeves and a carefully sewn trimming around the neck opening. Around the ears she wore gold rings and her large elaborate coiffure was covered and held together by a net of horsehair intertwined into rhombic checks. Under her head were found the remnants of a hood, skillfully made of two-ply wool in a very nar-

row braiding technique named "Sprang." FIGURE 8 illustrates a modern copy of this Skrydstrup hood.

As to the third woman's grave, the Borum Eshöj find, it is enough to say that the woman from this grave, who was between fifty and sixty years old, seems to have worn both the short and the long skirt; she also had the short-sleeved jacket and a broad girdle, nearly two and a half meters long, ending in magnificent tassels. A hair-net of fine two-ply wool, in an open "Sprang" pattern (see FIGURE 9), admired for many years in the National Museum, also comes from this grave, which unfortunately was not scientifically investigated.

HAVING NOW FINished our survey of the Danish Bronze Age costumes, we should add some remarks on the position of these dresses seen against the background of the general development of costume. Here it seems to me as if the Danish and South Scandinavian man's dress were a little more primitive than the woman's. This trouserless costume, consisting in its main parts of cloak and gown only, and so fitting itself in very well with the rather warm climate of the time, appears in fact to have been nothing else than a skin dress roughly transferred into a textile technique. FIGURE 1 thus clearly shows on the outside of the cloak the remnants of a pile sewn on apparently in imitation of an animal's long hairs; and a parallel observation can be made of the cap, FIGURE 3, which is undeniably an imitation of fur. Concerning the gown in FIGURE 1, with its suspender-like flaps, the form is evidently modeled on an animal's pelt, with a foreleg and a hindleg still attached and used to fasten it. Thus this Bronze Age man's dress is from a textile point of view not a very far developed type.

**Fig. 7. Girl's grave, Skrydstrup.**

As to the woman's costume, however, the situation is different. The jacket, for instance, having of course the world-wide skin poncho as a rather near ancestor, is nevertheless a proper piece of woollen cloth with real textile cut (yet we must understand the strips sewn on below as reminiscences from a remote time when the jacket-poncho made of a single pelt was not long enough). And the corded skirt, this masterly little performance of textile ability, has nothing whatsoever to do with the skin dress; its type should rightly be derived from vegetable plaiting and twining work. So the Bronze Age woman's costume

appears to us more developed and more independent than the man's, and no wonder. Let us not forget that the textile art is the woman's business, and let us note the skillfulness and independence of such performances as the hair-nets and the hood from the graves of Borum Eshöj and Skrydstrup.

Now, how shall we understand the two skirts? Did the short corded one belong only to young girls, while the long skirt was worn by elderly women? We cannot admit this, remembering that the long skirt was used by the young Skrydstrup girl while the mature woman from Borum Eshöj had, as it seemed, both sorts of skirt. Shall we believe, then, that the short corded skirt was for summer, while the long one was used mostly during the cold winter weather? This, I think, is the better theory, all the more as in

**Fig. 8.**

**Braided hood from girl's grave at Skrydstrup**

**MODERN COPY**

the coffin of the short-skirted Egtved girl was found a milfoil flower, showing that the burial took place in the summer. Whether the Borum Eshöj lady, wearing the short skirt *and* the long skirt, was perhaps a bit susceptible to cold, we cannot know.

Well—someone would rightly object—we still have no decisive answer to our problem: Was this so-called "long skirt" really a skirt, or was it a mere swaddling-cloth for the dead? This is a rather delicate matter and, I think, not to be answered with certainty now. Even if BROHOLM and HALD are

**Fig. 9. Braided hair-net from woman's grave at Borum Eshöj.**

right—and I am not sure they are—in arguing that the Skrydstrup "long skirt" was impossible to wear as such, and even if this "skirt" through future finds should turn out to be a swaddling-cloth, it would be highly probable, nevertheless, that it reflects a real piece of the woman's dress, used in life but not yet found in the graves. To this, as well as to other problems concerning these unique and exciting Danish Bronze Age costumes, we can only hope that the future will show the way to clear solutions.

* As to literature, it should be sufficient to mention the main result of the lucky collaboration between the archaeologist, Dr. BROHOLM, and the textile expert of the National Museum, Miss MARGRETHE HALD: H. C. BROHOLM and M. HALD, *Costumes of the Bronze Age in Denmark*, Copenhagen and London 1940; a very thorough investigation. For another recent activity of Dr. BROHOLM, see pages 61-62 of this issue.

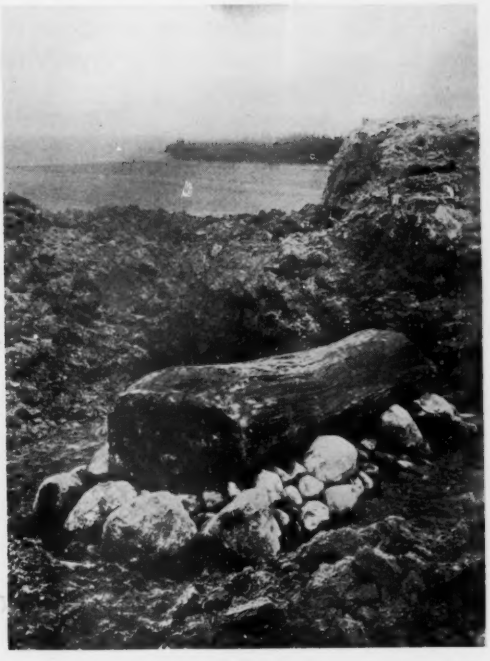
The illustrations on the facing page were received at the moment of going to press, after the previous pages had been composed, and therefore appear here out of the expected order.

Fig. 10. The man's costume from the Muldbjerg burial, on a living model. (A note from the author attached to this picture says "The model is now Iceland's 'rigsantiqvar' in Reykjavik."—Ed.)

Fig. 11. The woman's costume from the Egtved burial, on a living model.

Fig. 12. The oak coffin of a man's grave, as it appeared in the barrow before opening.

Fig. 13. The oak coffin of the Egtved girl, lying unopened in the barrow.



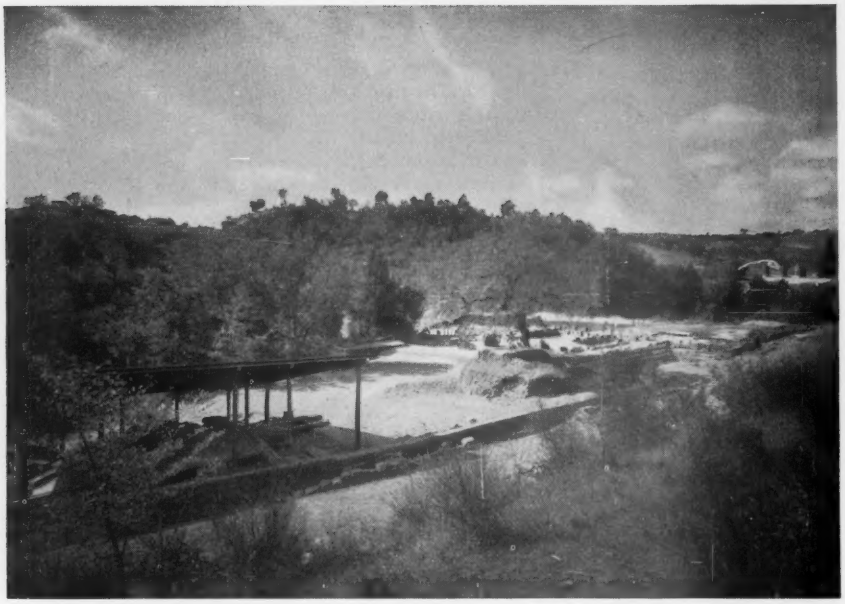


**Fig. 1. The Sanctuary of Portovaccio, the so-called Temple of Apollo at Veii. This is a general view of the excavations, taken in 1947.**

# THE POST-WAR EXPLORATION OF VEII

## By Mary C. FitzPatrick

DESPITE THE DIFFICULTIES OF POST-WAR RECONstruction and readjustment in Italy, archaeological explorations and consequent discoveries are still going forward, but at a slower pace than that which prevailed before the war. The accompanying photographs are intended to illustrate the progress and results of one such venture—that which culminated in the recovery of the right arm of the Apollo of Veii.

In August, 1944, very soon after the liberation of Rome, notwithstanding the difficulties which then prevailed, Dr. MARIA SANTANGELO, an archaeologist of the staff of the Villa Giulia Museum in Rome, undertook a brief but very successful excavation at the Sanctuary of Portovaccio (FIGURE 1), more generally known as the Temple of Apollo, in the valley beneath the high land on which had stood the ancient Etruscan city of Veii, a few miles north of Rome. Excavations at this site in 1916 had brought to light the now famous terracotta statue of the Apollo of Veii, one of the present glories of the Villa Giulia, as well as important fragments of other life-size fictile terracottas: the head and knees of a statue of Hermes, the body of a woman believed to be the goddess Artemis, the body of a hind thought to be that which was sacred to Artemis, and parts of the body of a statue of Hercules—all belonging to a single terracotta statuary group.

It is believed by some that these are the handiwork of Vulca, the Etruscan sculptor (late sixth and early fifth century B.C.) who executed the statue of the Capitoline Jupiter and the four-horse chariot group which in the time of the Tarquin kings, or so we are told, adorned the temple of Capitoline Jove in Rome.

After the discovery of the group in 1916, partic-

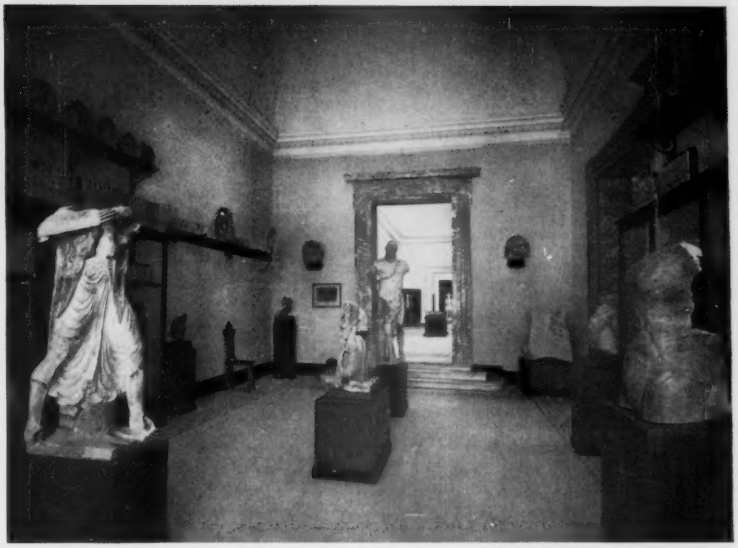


Fig. 2. Villa Giulia Museum: Hall of the Veientine terracottas. The statue of the Apollo, with its newly discovered right arm, stands on the base immediately before the steps. On the base in front of the Apollo is the fragment of Artemis' hind. In the left foreground is the headless statue of Artemis. The head of Hermes stands on the base in the left-hand corner. The muscular torso on the base in the near right corner is that of Hercules. The next base contains another fragment of this same statue. Ranged on shelves around the walls are terracotta antefixes from the temple.

ular attention was paid to the Apollo, partly because it was the least mutilated figure in the group, but more especially because of certain striking characteristics that are observable in it. The old Etruscan craftsmen in clay had been able to impart in a high degree the quality of movement to their sculptured figures. This trait is so marked in the case of the Apollo of Veii that soon after his discovery he became known as the "Walking Apollo." That the restoration of the recently discovered right arm considerably enhances this impression of movement the accompanying photographs clearly show. A front view of the statue (FIGURE 2) shows the arm newly restored. A side view, taken so that the right arm is all but lost in the shadow (FIGURE 3), more closely resembles representations of the Apollo which have heretofore been published. This view definitely shows the god striding forward, perhaps to rescue the hind of his sister Artemis from being seized and carried off by Hercules.

The next photograph (FIGURE 4) is that of the discoverer herself, Dr. MARIA SANTANGELO, to

Fig. 3. Villa Giulia Museum: Another view of the Hall of the Veientine sculptures. In the right foreground is the Apollo, with its forward striding quality easily discernible. The same kind of motion can also be noted in the statue of Artemis at the far center. The hind, tied by the legs and posed with its back to the ground, is seen on the base in the center foreground.

Fig. 4. Villa Giulia Museum: Dr. Maria Santangelo, most recent excavator of Veii, at work in one of the restoration laboratories in the museum.

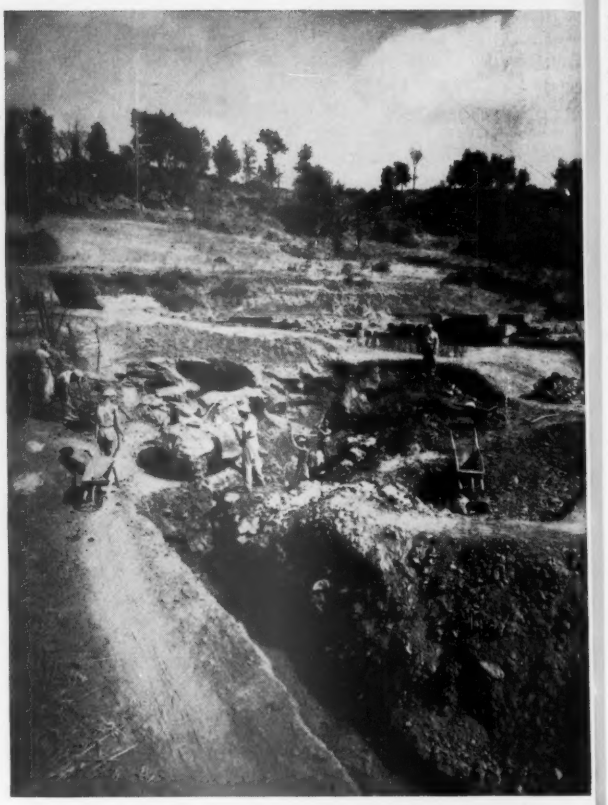


Fig. 5. The Sanctuary of Portovaccio, at ancient Veii, showing excavations in progress in a tufa quarry of late Roman date. At approximately the center of the right hand side of the picture Dr. Santangelo stands, observing the washing of terracotta fragments and directing the work of excavation.

whom I am primarily indebted for much of the information in this account and for all the photographs.

The last photograph (FIGURE 5) is a view showing the excavation work of 1944 in progress. The work was interrupted for a time by lack of funds, but private donations and another government grant have enabled DR. SANTANGELO to resume her explorations at Veii. Since it is her firm conviction that further excavation will uncover still other missing fragments of the figures in the group to which the Apollo belongs, the near future may see the addition of still more pieces to this ancient masterpiece.

Fig. 1. Gasr es-Suq el-Oti, or Lower Market Castle, consists principally of four fortified farmhouses (gsur, plural of gasr, from Latin castrum 'camp') and a church. The building shown here is Gasr No. 1. The extension at the right is the tower; the fallen blocks in the foreground are what remains of the outbuildings which housed the family's retainers and flocks. See also text and Figures 5 and 7.

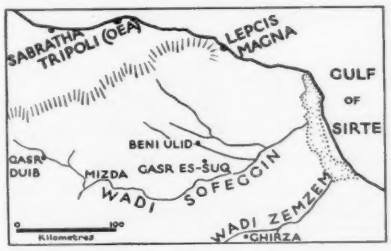
# GASR ES-SUQ EL-OTI

## A DESERT SETTLEMENT IN CENTRAL TRIPOLITANIA


### By J. B. Ward-Perkins

*John Ward-Perkins, a graduate of New College, Oxford, and a former Assistant in the London Museum, is a veteran of six years' war service in the Royal Artillery, in London, with the Eighth Army in North Africa, and with the Monuments and Fine Arts Sub-commission in Italy. He is now director of the British School at Rome, and since 1945 has been engaged in a program of survey and record in Tripolitania.*


SOUTH OF THE SETTLED COASTAL ZONE OF Tripolitania there lies a tract of semi-desert country which, both in the quantity and the preservation of its remains, is one of the richest unexplored fields of classical antiquity. Geographically the greater part of this territory is comprised within the basin of a great quaternary river, now the Wadi Sofeggin, which once flowed eastwards into the Gulf of Sirte. Enough rain falls almost every year for the bedouin to scratch a scanty crop of wheat from the beds of the main wadi and of its tributaries; but for the rest of the year, and particularly when the choking, dust-laden *ghibli* blows from the south, it lives up to its alleged Arabic name, "the Valley of the Devils."




The contrast with antiquity cannot but impress the most casual traveler. Hardly a turn of the track but brings some fresh evidence of a vanished past. It may be a tower or a fortified farmhouse on a bluff overlooking a wadi, or perhaps the elaborate family mausoleum that accompanied it; or it may be the wadi-bed itself, seamed with the field boundaries, the terraces, and the catchment-channels leading to wells and cis-

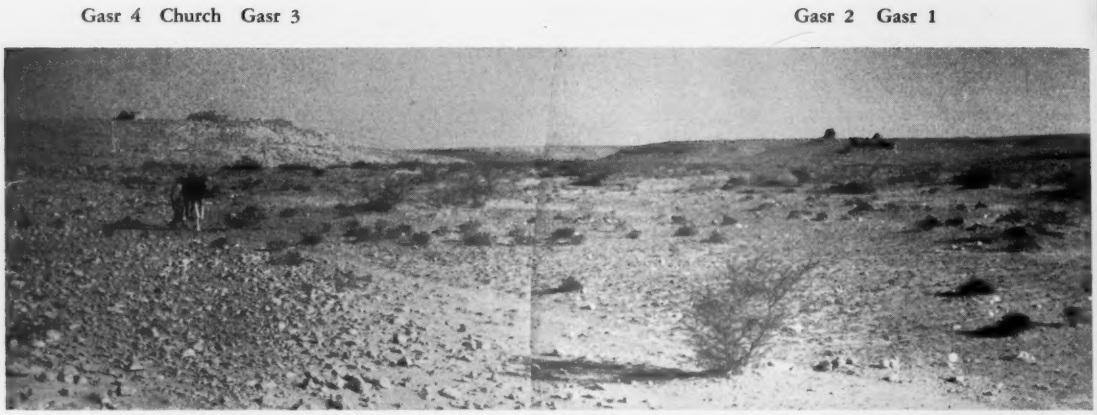



**Fig. 2. Gasr es-Suq el-Oti, as it appears to the traveler approaching down the Wadi Bosra, with the relative positions of the five principal structures. In classical times the wadi-bed was covered with wheat fields and groves of date palms. The camel in the left foreground gives the scale.**

terns, that all attest the vigorous agricultural life of the adjoining settlements. All is wonderfully preserved; for when these settlements finally withered and died, the desert moved in; and until modern times there has only been the bedouin to disturb their remains.

In late prehistoric times the whole of this area was still covered with vegetation, scrub on the uplands and woodland in the valleys. With the steady decrease in rainfall, the habitable area of North Africa had long been shrinking; but there is abundant evidence that neolithic man was still able to wander at will, pasturing his flocks, throughout the Sofeggin basin.

When Rome fell heir to the Carthaginian domains, she was for a long time content to hold the olive-growing hills to the north, and to leave this frontier zone undisturbed save for an occasional parade in force into the interior; and it was not until the reign of the Tripolitanian-born Emperor, Septimius Severus, that the frontier was advanced to incorporate the whole of the basin of the Sofeggin and a part of the adjacent Wadi Zemzem. Far to the south, impressive legionary fortresses were established to control the caravan-routes that brought the ivory, gold, and slaves of Central Africa to the cities of the coast; and during the next few decades small forts were established over a large part of the Sofeggin and Zemzem basins.

Some of these were regular police-posts, manned by military units; but the majority were fortified farmsteads, granted together with the adjoining lands to *limitanei,* native settlers, who formed a loosely organized frontier-defence force, grouped by districts under local zone-commanders. Usually these fortified farms stood singly, each the center of its own little community; sometimes they were collected into small townships.

GASR ES-SUQ EL-OTI ('Lower Market Castle') is typical of the sites which await discovery. It lies on the Wadi Bosra, a northern tributary of the Wadi Sofeggin, and it was discovered in 1946 by Mr. E. J. HILLYARD. His were probably the first modern European eyes to see it. It lies barely twelve miles southeast of the populous centre of Beni Ulid; but

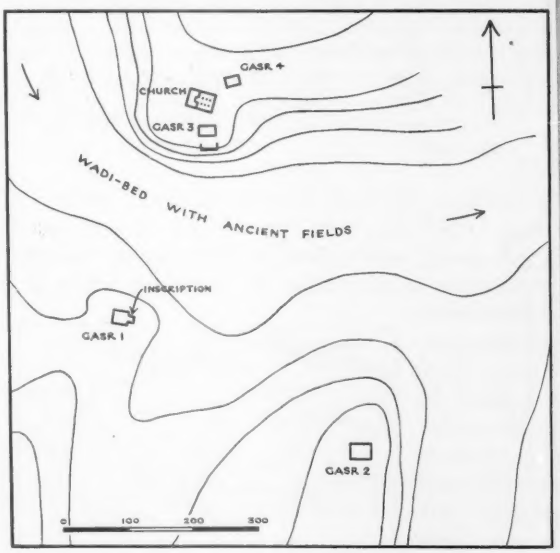



**Fig. 3. Gasr es-Suq el-Oti: Plan of the site.**

to reach it, the only alternative to a camel, as RICHARD GOODCHILD and the writer were made painfully aware when we visited the site in 1948, is a bone-breaking drive across miles of jagged, stony outcrop, followed by a five-mile trudge down the windless heat of the Wadi Bosra.

The settlement lies at the junction of the Wadi Bosra with one of its tributaries, and it comprises a considerable community grouped about five major buildings, four *gsur* and a church. The *gasr* (from the Latin *castrum;* plural *gsur*) is a fort-like rectangular structure, two or three stories high, with a single entrance and occasionally a projecting tower. It is built of the simplest materials, a core of rubble, concreted

**Fig. 4. Gasr es-Suq el-Oti: Gasr No. 2, as seen from across the Wadi Bosra. The lighter streaks in the wadi bed are the remains of field boundaries.**

with mud into a solid mass and faced with small, roughly squared limestone blocks.

The intermediate floors of the earlier *gsur* are often carried on timber beams; but later, as suitable timber grew scarcer, barrel-vaults of masonry became the invariable rule. In all but the smallest and simplest examples there is a central courtyard, with the remains of a wooden staircase leading to the upper floors. Gasr No. 2 at Gasr es-Suq is typical both in plan and construction; and although it was certainly the residence of a family of *limitanei,* it differs in no essential from one of the contemporary frontier-fortlets manned by regular troops.

Of the three remaining *gsur,* No. 3 is very ruined, while No. 4 is smaller and, to judge from the more irregular masonry, later than the rest and contemporary with the church. Gasr No. 1 was the most elaborate of the four, a rectangular building with a central courtyard and, projecting from one of the shorter sides, a tower, in the flanks of which are a large entrance door and a smaller postern. Both are orna-

**Fig. 5. Gasr es-Suq el-Oti. In the foreground, the crumbling stone walls of Gasr No. 2. In the distance, left, Gasr No. 1; right, the church.**

mented, the one with a moulded arch and rosettes, the other with an elaborately carved and inscribed panel.

The latter has unfortunately been defaced by later scribblers, and a few letters only survive; but, on the analogy of similar panels elsewhere, it belongs to the later third or fourth centuries, and was written, either in a dialect which the writer fondly believed to be Latin or, more probably, in the local Libyan tongue, written in Latin script and with a few Latin words thrown in for good measure. Latin was the language

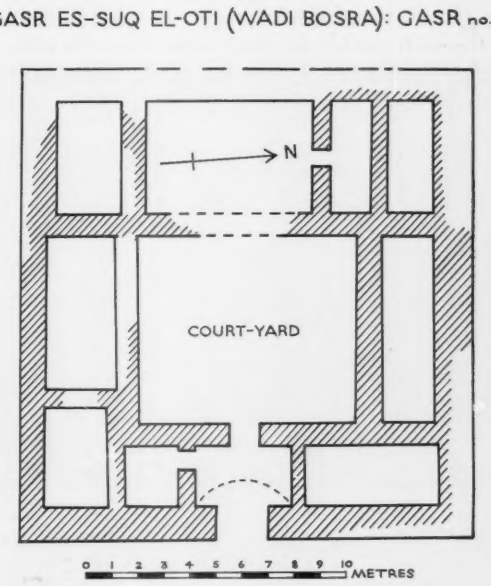



**Fig. 6. Gasr es-Suq el-Oti. Gasr No. 2, plan.**

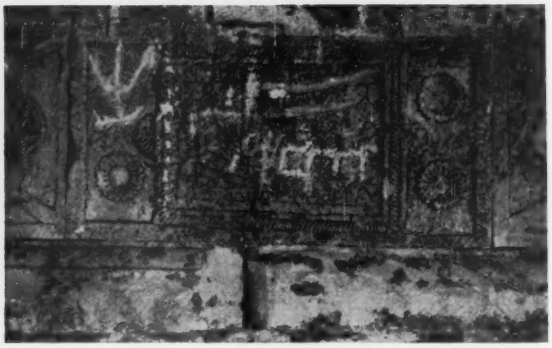


**Fig. 7. Gasr es-Suq el-Oti. Gasr No. 1, inscription over main door. Largely defaced by later scribblers, it is almost illegible, but the letters are Roman, while the language is probably the as yet undeciphered ancient Libyan tongue.**

of the frontier administration; but it is quite clear that it was never the language of the common people.

Grouped around each *gasr* are the tumbled remains of outhouses and enclosures, built in characterless, dry-stone masonry. Each *gasr* was in itself a small community, with retainers and flocks to be housed. Water was evidently a precious commodity. Not only are there many cisterns to store the rain-water from the roofs; in the fields the torrential winter rains were harnessed by means of stone dykes laid at right angles to the wadi-bed. These served both to contain the soil and to hold the water back long enough for it to soak into the ground. Other dykes set obliquely along the flanks of the wadi guided the flood water from the hillsides into the fields or into cisterns. On the flat limestone uplands there is little trace of cultivation, and they were no doubt the grazing-grounds for the flocks of these valley settlements.

The church is a three-aisled basilica, following closely the model of the pre-Byzantine churches of the coastal cities, which had a single raised apse towards the west and an altar, beneath a canopy, near the middle of the nave. Nave and aisles alike were vaulted; and the careful ashlar masonry of the nave arcades is in striking contrast to the casual workmanship of the exterior.

In common with most of the churches from the interior of Tripolitania, the building was later enlarged to the west. The added rooms are buried deep in rubble; but there can be little doubt that, as in the other churches of the series, the principal purpose of the addition was to house a baptistry of the elaborate cruciform type that was introduced into Tripolitania by Justinian. This increasing emphasis on the baptistry possibly reflects the influence of Donatism; for although as yet only one site in this frontier region has afforded concrete evidence of Donatism, elsewhere in North Africa it was precisely from the less romanized, native districts that the movement drew its strength; and it is hard to believe that Tripolitania was an exception.

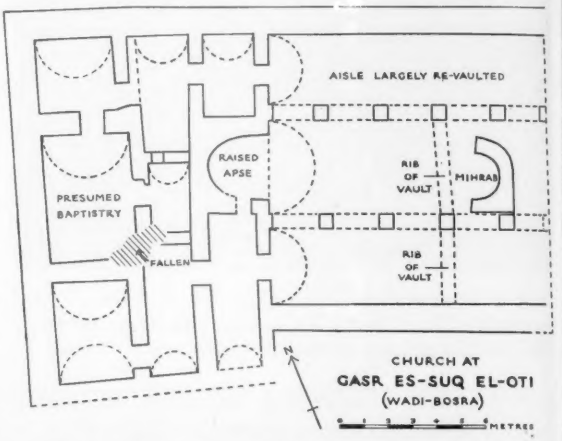



**Fig. 9. Gasr es-Suq el-Oti: Plan of the Church.**

**Fig. 8. The tombs of Ghirza, an outlying settlement on the Wadi Zemzem, far to the south of Gasr es-Suq, have yielded a series of reliefs illustrating hunting, harvesting, gathering dates, and other scenes of daily life. This shows the haughty camel as a plow-animal.**

THE LATER HISTORY of these frontier settlements is something of a paradox. Created as a bulwark to defend the settled coastal zone, they reached the peak of their prosperity during the fourth to sixth centuries, at a time when the more intensely romanized parts of the province were in full decline. Indeed it is hard to resist the conclusion that, among the tribes-

**Fig. 10. Gasr es-Suq el-Oti: The interior of the church, buried deep in the rubble from the fallen vaults, as seen from the east.**

men from the interior, who as early as A. D. 365 sacked Sabratha, and had brought about the virtual abandonment of the coastal cities by the end of the fifth century, there was many a *gasr*-holder from the frontier zone.

After the Byzantine re-conquest in 533, there was a brief revival of city life; but it was a sorry parody of the past, and it was finally and rapidly extinguished a century later, when Imperial rule in its turn collapsed before the Arab invader.

In the interior there was no such break in continuity. Not only were many of the *gsur* rebuilt or patched in Arab times, but new ones were certainly being erected as late as the seventh and eighth centuries. At Gasr es-Suq the community survived to embrace the Muslim faith and to turn its church into a mosque. It was only gradually that the settlements were abandoned.

The first to go were those on the fringes of the settled zone, where the margin was least; later, slowly but inexorably, the rot crept inwards. Today in Tripolitania the same drama is being played once more, as one after another the outlying Italian farms are abandoned, the trees are felled, doors and window-frames are stripped for firewood, and the sand drifts in. The Roman settlements had deeper roots, and the decline was more gradual.

Indeed, after seventeen centuries it is still not quite complete. The Arab villages which flank the Wadi Beni Ulid, each one a warren of tumble-down hovels clustered around a central *gasr*-like tower and overlooking the terraced fields and the palm- and olive-groves in the wadi-bed, are the lineal descendants of the Severan frontier settlements.

Why did these settlements vanish? At a time when the full use of the earth's resources matters as never before, the question is a very practical one. There has certainly been no major climatic change in North Africa in the last two thousand years, although it is probably mistaken to suggest, as many writers do, that the steady desiccation since paleolithic times has altogether ceased; but in marginal areas it has probably been enough to tip the scales. Nor can the trouble be blamed solely on the Arab or the goat. A more improvident and destructive pair it would be hard to name; but they were only finishing a work that had

**Fig. 11. Gasr es-Suq el-Oti: The church; detail of the interior, showing the preserved vaultings and, on the left, the mihrab of the later mosque.**

begun in Roman times, perhaps even earlier in the coastal zone.

The root of the matter was deforestation. As long as the natural scrub and woodland remained, it held the soil and retained the water from the winter rains. Once it was stripped, erosion and seasonal drought inevitably followed. Only one who has seen a desert wadi in flood after a cloudburst can realize quite what this means. Even in the coastal zone Lepcis Magna was already in the fourth century menaced by shifting sand dunes; and Justinian's troops found the city largely engulfed by a great white blanket of sand.

In the interior, where the margin was yet more precarious, the establishment in the third century of large numbers of agricultural settlers brought initial prosperity; but it also set in motion a train of evils, which in a later, less disciplined age gathered momentum and bequeathed to posterity a wilderness. The Romans are often, and rightly, praised for the positive achievements of their agricultural economy. The Tripolitanian desert reminds us that there was at times a reverse face to the coin.

**Fig. 12. Gasr Duib, a third-century military fort on the upper Sofeggin. In plan and construction these are indistinguishable from the domestic gsur of the same period.**

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# THE COLT PAPYRUS FIND FROM AUJA

SHORTLY AFTER THE START OF HIS THIRD SUCCESsive excavation campaign at Sbeita in southern Palestine in November 1935, HARRIS DUNSCOMBE COLT, of the Colt Archaeological Foundation, was forced by the failure of the local water supply to abandon work. Rather than lose the trouble and expense that goes into the organization of a season's expedition, Mr. COLT decided to move his forces and equipment to Auja el-Hafir in the next valley, twenty miles away.

Mr. COLT had no great hopes of Auja. Had not Auja after expert reconnaissance been pronounced to be one of the sites least likely to repay, in terms of significant scientific knowledge, the costs of excavation? Had not this site, offering little promise to begin with, been seriously messed about by the Turks in preparing the military installations necessary for making it into a base of operations for their stillborn attempt upon the Suez Canal in World War I? Perhaps one could at best recover a few interesting floor plans. Anything was better than nothing.

Is archaeology thrilling romance or tedious hard work? The precise mixture of these ingredients is, as often as not, the determination of Fortune. On this occasion, it was her mood to smile propitiously and benignly. Initial shock, turning swiftly to jubilation, was brought on by the discovery, within a few days, of what all reason and all experience forbade to be discovered in this area—a stunning deposit of papyri, documents written in Greek and in Latin, in Arabic, in Aramaic and in Syriac.

After the collection was packed for overseas shipment, authorization was obtained from the Palestine government to export them for cleaning, study and publication. They were brought via London to New York, where, after further processing by Mr. COLT, they were placed at the disposal of CASPER J. KRAEMER, JR., of New York University, to be prepared by him and a group of colleagues for formal publication.

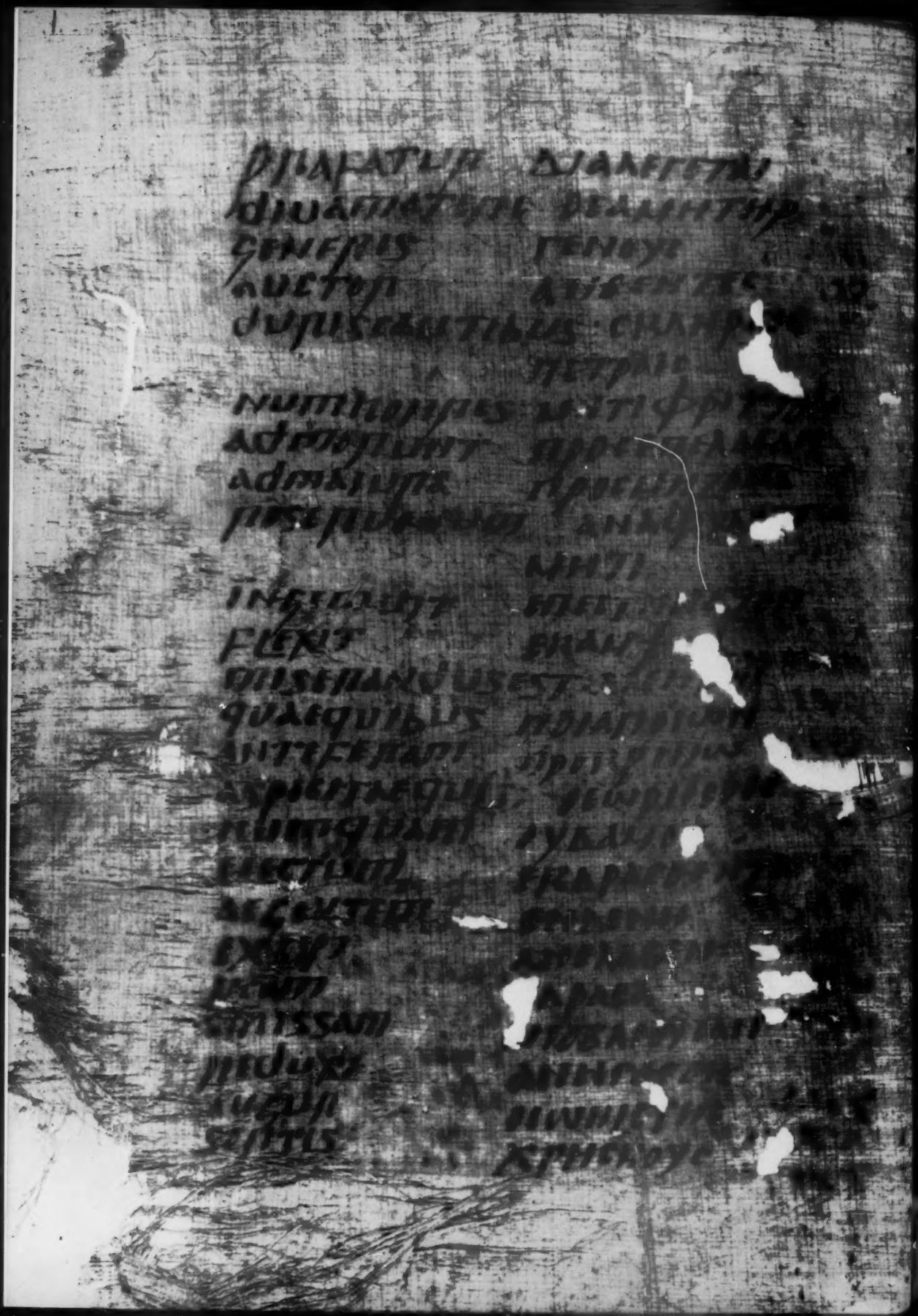
The collection, consisting of several hundred pieces, large and small, ranging from tiny fragments to complete or nearly complete documents, divide rather easily into two major groups. One of these consists of those written instruments that deal, for better or for worse, with matters that are the necessary concern of people living in civilized communities in all times and places: wills and inheritance, contracts, real estate conveyances, sales of produce, taxes, divorce. Out of this group now emerges a lively picture of life in Auja—Nessana, its inhabitants called it—a frontier military post of the declining Eastern Roman Empire from the middle of the sixth century A.D. to the early part of the eighth, when the region was torn away from the Empire by the Arab conquest.

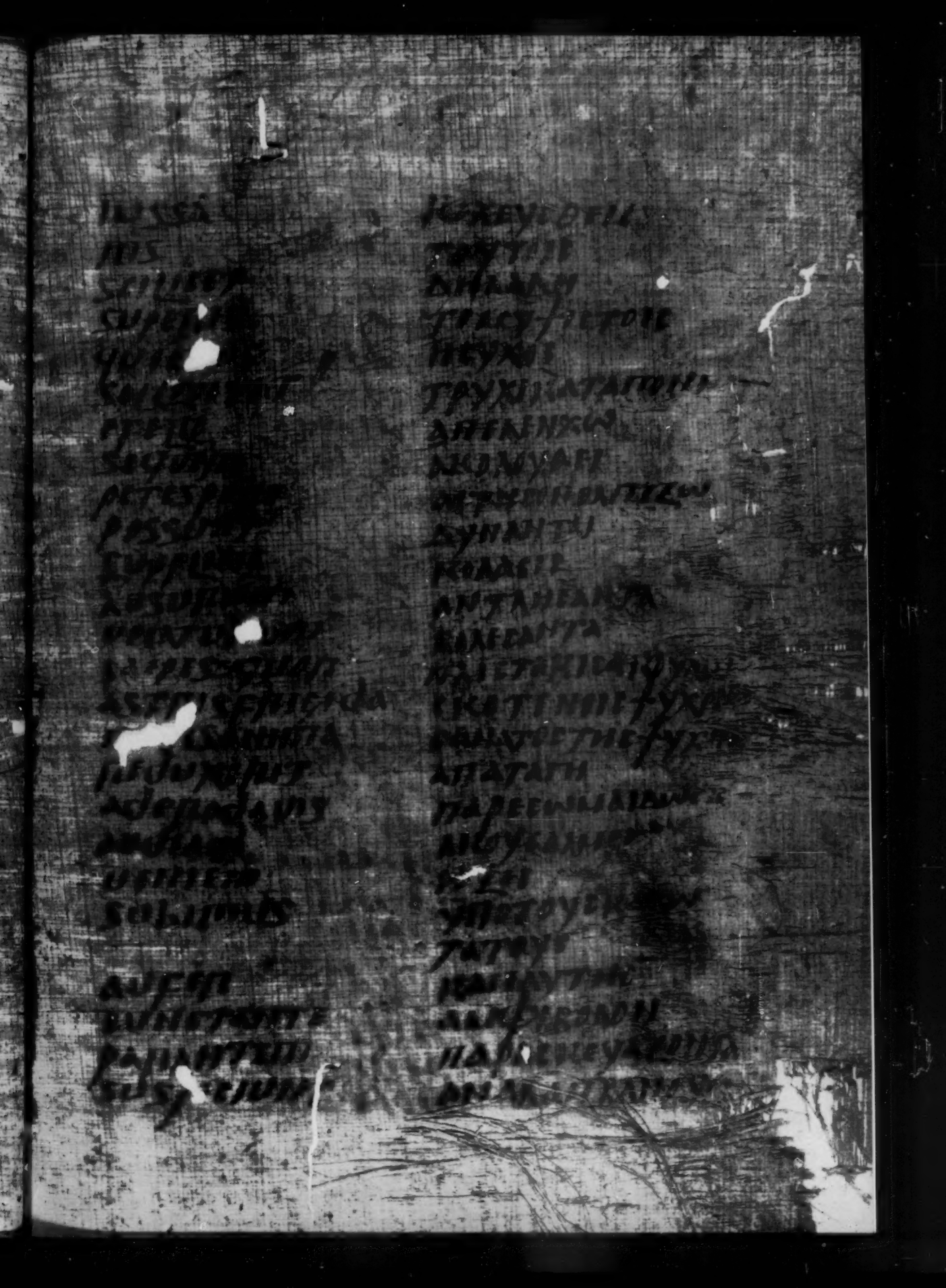
The second group, now ready for full publication and prepared jointly by LIONEL CASSON and the undersigned, consists of literary texts mostly of religious and theological interest. We have parts of three seventh century codices of the New Testament: forty consecutive fragmentary pages of the Gospel according to St. John, many fragments from various parts of St. John, and fragments of the Epistles of St. Paul. A single sheet contains the apocryphal letter from Abgar, King of Edessa, to Christ, and Christ's reply. There are extensive fragments of a codex of the Acts of St. George of Lydda, and a piece of a crude folio codex, still held together with the original thong, containing the twelve articles of faith formerly ascribed to St. Gregory Thaumaturgus, preceded by a Greek glossary reminiscent of Suidas and Photius.

Is any classical Greek or Latin author represented? Only one and he twice. Surely, once more we are confronted with the inscrutable sport of Tyche. The author is Vergil. There are bits of some thirty pages of a codex that contained a text of the Aeneid, most of the extant pieces being from Book VI. The *pièce de resistance*, however, is the second Vergilian codex, a glossary in double columns, presenting words of the Aeneid in the left hand column, with Greek translations in the right. Preserved nearly intact is a gathering of four sheets (16 pages) with selected words from Book IV. By turning to the following page you may see a photograph of the center sheet of this gathering, representing lines 364-391. A second gathering of 14 pages, also excellently preserved, is defective chiefly in the loss of the first leaf. This contains consecutive text with no omissions from the early portion of Book II. Thirty other scattered pages of the codex are represented by pieces that again range from tiny fragments to one complete leaf (2 pages), and fall mostly in Book I.

—ERNEST L. HETTICH

*The document reproduced on the following pages is part of a papyrus codex from Auja, containing a glossary of Vergil; this page opening represents Book IV, lines 364-391.*





# THE APOSTLE PAUL IN ATHENS

## By Eugene Vanderpool

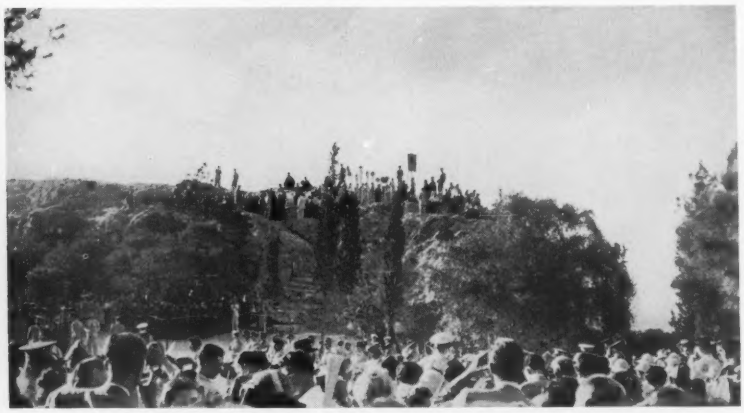
IN JUNE 1951 THE HELLENIC ORTHODOX CHURCH PLANS TO CELEBRATE THE NINETEEN HUNDREDTH ANNIVERSARY OF THE APOSTLE PAUL'S MISSIONARY JOURNEYS IN GREECE. CEREMONIES ARE TO BE HELD AT ALL THE PLACES IN GREECE WHERE PAUL PREACHED THE GOSPEL, OF WHICH THE CHIEF ARE ATHENS, CORINTH, THESSALONICA, PHILIPPI, AND BEROEA, AND WILL CULMINATE IN ATHENS ON JUNE 29, THE FEAST OF ST. PETER AND ST. PAUL

PAUL, THE APOSTLE OF THE GENTILES AND THE first great Christian missionary, visited Greece on a number of occasions and spent in all several years of his ministry there. He travelled widely across Macedonia and down to the Peloponnesus, he touched at many of the islands, and, on one of his journeys, he settled down in Corinth for nearly a year and a half.

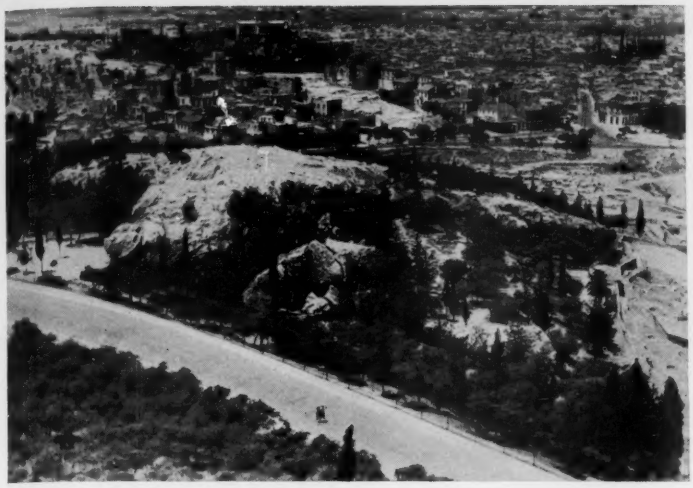
He paid only one visit to Athens, as far as we know, but it was a memorable one and it is vividly described in the seventeenth chapter of the *Acts of the Apostles*. Athens at this period was the cultural capital of the ancient world and the chief seat of learning and philosophy, and it was natural that Paul should want to visit it. As was his wont, he first made contact with the Jewish community and preached in the synagogue. But he also sought a wider audience and went daily to the market place, or to give it its Greek name, the Agora, that is, the main square, the most frequented part of the city.

Here it was customary for people of all sorts, officials, business men, philosophers and mere idlers, to gather daily to transact business, to hear the news, to exchange views, to teach, or to pass their time; Paul was thus merely following the normal procedure of Greek philosophers and sophists. Paul found a ready audience, not only among the philosophers but also among the common folk, for as St. Luke, the author of the *Acts*, aptly remarks, "the Athenians and strangers which were there spent their time in nothing else but either to tell, or to hear some new thing." His teaching caused something of a stir, and he was accordingly summoned for a hearing before the Court of the Areopagus.

The Court or Council of the Areopagus was an august body of elder statesmen, membership in it being confined to former archons. The Athenians



Each year on June 29th, the Feast of St. Peter and St. Paul, a vesper service is held on the Areopagus. The Archbishop of Athens and All Greece officiates, assisted by the members of the Holy Synod, a special choir sings the anthems, and Paul's address to the Areopagus is read. This picturesque open-air service, to which the banners and the bright robes of the priests add color, attracts thousands of pious Athenians.



**The Areopagus, Mars Hill, as seen from the Acropolis. On the terrace below the cliffs at the right center are the ruins of the Byzantine church of St. Dionysios the Areopagite. This church in all probability was built on the site of the court of the Areopagus of which Dionysios was a member and before which Paul appeared.**

traced its origin back to mythical times, and Aeschylus tells in the Eumenides the story of its founding by the goddess Athena herself. It derived its name from the Hill of Ares, Mars Hill, on which it held its meetings. In Paul's day the Court had wide powers, among which was a sort of censorial control in religious matters, and it was for this reason that Paul was summoned to appear before it. He had not been accused of anything and was not being tried, but as he had clearly been preaching a new and strange religion it was the Council's duty, as guardian of public morals, to have first-hand knowledge of it. The Councillors apparently found nothing subversive in Paul's teaching, for after hearing him they let him off, some mocking, others merely remarking vaguely that they would hear him again on this matter.

As a result of Paul's speech, one of the members of the Court which had heard him, a certain Dionysios, whom we now know as Dionysios the Areopagite, believed. A woman named Damaris and certain others joined him to form the first Christian community in Athens, and we are told that Dionysios became the city's first Bishop. He is said to have died a martyr's death in the reign of Domitian. He has been canonized by the Orthodox Church and is now the Patron Saint of the city of Athens, and a large new church dedicated to him stands on the lower slopes of Lycabettus Hill, in a modern quarter of the town.

In mediaeval times, his church stood on the terrace just below the cliffs on the north side of the Areopagus. This church, whose ruins were excavated in 1915 by Professor SOTERIOU and which was further explored in 1934 by the American School of Classical Studies, under the supervision of DOROTHY BURR THOMPSON, dates from Byzantine times, and it may be that an even earlier church still remains to be found in the area. A church existed here until at least the seventeenth century, for writers of that period mention it and, in front of it, the Archbishop's house, remains of which have also been found.

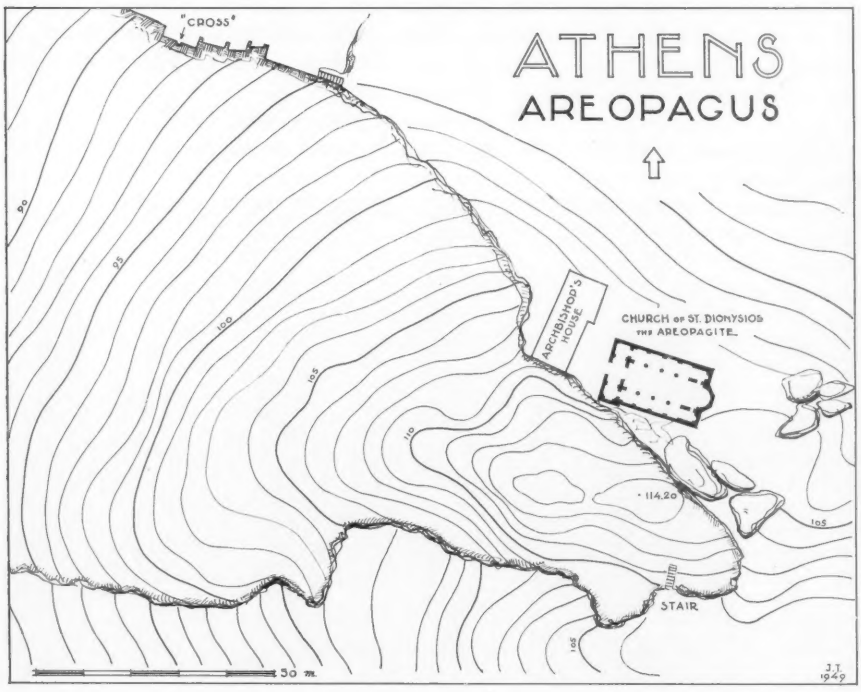
It seems most probable that this Church occupies the site where the Court of the Areopagus met. The

**The Areopagus as seen from the south. An ancient rock-cut stairway leads to the top, and it is at the head of this stair that scholars, without sufficient reason, have usually located the Court of the Areopagus. The annual vesper service is held here. At the right may be seen a bronze plaque, set up in 1938, containing the text of Paul's address to the Court of the Areopagus.**

Ancient rock cuttings for houses on the lower northern slopes of the Areopagus. In the room at the center can be seen a cutting shaped something like a cross, actually made to receive an ancient herm, a square stone pillar topped with a bust and having small square stubs to indicate the arms, probably a portrait herm which adorned a private house. Local tradition would have this "cross" mark the spot where Paul spoke.

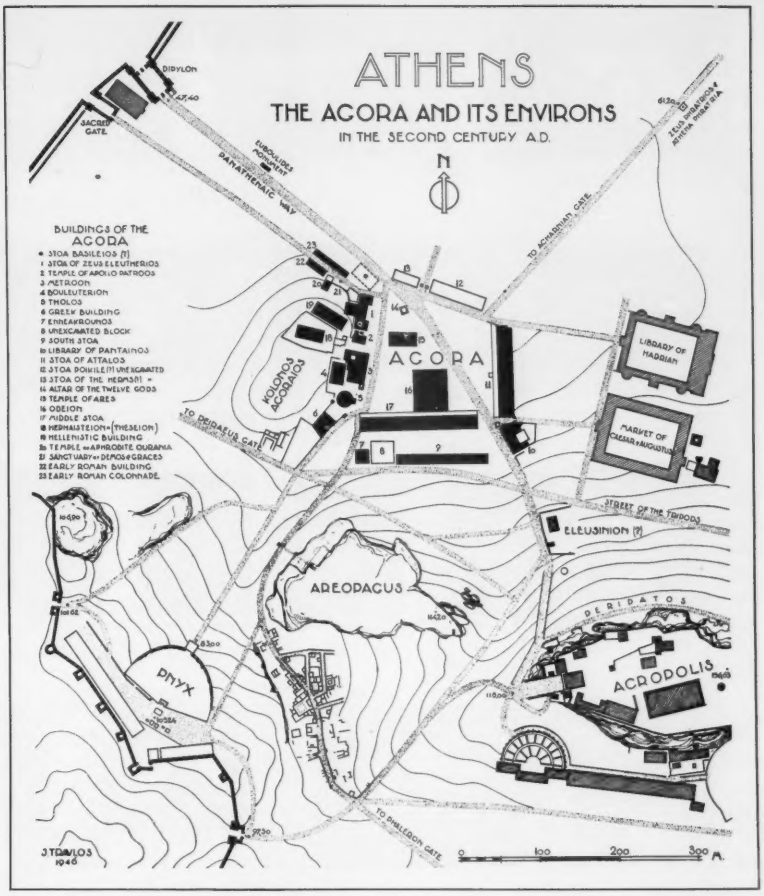
place usually indicated for the Court is on the top of the hill, at the head of the stairs leading up from the south, but there is no really suitable place here and the cuttings which remain suggest houses or other small structures. The terrace just below the summit to the north seems to offer more suitable accommodation, and it is surely a significant fact that the Church of St. Dionysios the Areopagite is located here.

Is it not reasonable to suppose that the early Christian community of Athens, in erecting on the Hill of Ares a church in honor of its first Bishop and Patron Saint, Paul's first and most distinguished con-




Plan of the Areopagus, drawn by Mr. John Travlos, showing the Byzantine church of St. Dionysios the Areopagite, now in ruins.

Mr. Travlos believes that further excavation on the site would reveal the remains of a still earlier church dating from early Christian times, say the fifth century. Traces of the ancient court of the Areopagus might also come to light.




Plan of the Agora of Athens and its environs in the second century A.D., and, essentially, as it was in the time of the Apostle Paul a few generations earlier. The Agora or Market Place was the main square of the ancient city, the seat of the government and the focal point of public life. Surrounded by spacious colonnades or stoas, dotted with temples, shrines, altars, and statues both of gods and of men, it must have been one of the sights that stirred Paul's spirit in him as he saw the city wholly given to idolatry. Here he came daily and disputed with them that met him. Of the philosophers, Epicureans, and Stoics, that encountered him, the latter took their name from the Stoa Poikile on the north side of the square where their founder Zeno had taught.

The excavation of the Athenian Agora has been carried on by the American School of Classical Studies since 1931 and is still continuing.

vert, would choose a site connected with the life of the Saint, the Court of the Areopagus, by now abandoned, of which Dionysios had been a member and where he had been converted by Paul's famous and stirring speech recorded in the Scriptures? This very thing happened at Corinth, where we find a church overlying the ruins of the bema in the Agora, the spot where Paul appeared before the Roman governor Gallio.

A more thorough exploration of this terrace of the Areopagus may one day shed further light on the question.

The Areopagus, Mars Hill, as seen from the north. In the foreground is the eleventh century Byzantine church of the Holy Apostles.

SYRIA

LEBANON

ISRAEL

IRAQ

IRAN

*Stamps reproduced by courtesy of Scott Stamp and Coin Company, New York 20, N. Y., and Hudson Stamp Company, New York 7, N. Y.*

# ARCHAEOLOGICAL SCENES ON POSTAGE STAMPS

*Many countries have realized that archaeological views on postage stamps may be used to draw attention to their past history, and have acted accordingly. Israel and India, for instance, issued stamps depicting archaeological scenes within the first year of their establishment. Modern methods of lithography and photogravure have been used on most archaeological series with striking results. On the facing page are examples from recent issues of five states of western Asia: Syria, Lebanon, Israel, Iraq, and Iran.*

SYRIA

2 piastres: The colonnaded street of Palmyra, oasis at the crossroads of the caravan routes of the Syrian desert. 3 piastres: The Roman bridge at Daphne, suburban playground of prosperous Antioch. The Antioch district has been ceded to Turkey since this series was issued. 10 piastres: The Daphne bridge again, from a different angle and from further back. Antioch, founded about 300 B.C., was the capital of the Seleucid Empire, an administrative center under the Roman and Byzantine Empires, and an early stronghold of Christianity. 10 piastres: The gateway to the Turkish and Crusader castle at Aleppo, approached by a narrow bridge straddled by massive towers.

LEBANON

Lebanon's architectural glory is the acropolis terrace at Heliopolis, modern Baalbek, with its massive Corinthian temples of Hadad (Jupiter) and Bacchus. 0.25 piastres: Temple of Bacchus. 0.75 piastres, and 2.50 piastres surcharged 6 P.: Temple of Bacchus and, in the background, the six surviving columns and a section of the entablature of the Temple of Jupiter. 7.50 piastres: The six columns of the Temple of Jupiter, with the Temple of Bacchus in the distance. Not visible are the three celebrated stones ("Trilithon") of the retaining wall, one of them 62 x 14 x 11 feet, perennial source of amazement to travelers.

ISRAEL

This series of Israel stamps shows reproductions of Jewish coins issued during the two rebellions against Roman domination, 66–70 A.D. and 132–135 A.D. 5 mils: A bronze coin of 67 A.D., showing a fig leaf and the inscription "Freedom of Zion." 10 mils: The other side of the same coin, depicting an amphora and the inscription "Year Three." 15 mils: A coin of the second rebellion. Bearing a bunch of grapes, it reads "Year One of the Redemption of Israel." 20 mils: A silver shekel of the first rebellion, with a ritual cup and the inscription "Year Two. Shekel of Israel." 50 mils: A large silver coin showing two religious objects and the message "Year One of the Redemption of Israel." 250 mils: This stamp reproduces both sides of the coin depicted on the 20-mil stamp. The obverse shows a branch with three pomegranates and the inscription "Jerusalem the Holy."

IRAQ

Assyrian, Sassanian, and Arab motifs abound in the archaeological remains of Iraq and appear on Iraq stamps. 1½ annas: A winged being, copied or adapted from an Assyrian relief. 3 annas: The celebrated arch at Ctesiphon, attributed to the sixth century Sassanian king Chosroes I; it was built of burnt brick, with a barrel vault spanning 86 feet. 15 fils and 20 fils: These stamps, issued in 1941, show a massive Babylonian lion, sculptured in the round. 75 fils: The Spiral Tower, the minaret of an Arab mosque built at Samarra about 850 A.D.

IRAN

Persepolis is still the favorite reminder of Iran's glorious past. 10 dinars: The famous Sad Sutun, or Hall of the Hundred Columns, some of which still stand as they appear in this picture. 5 krans: A bas-relief of Darius I, son of Hystaspes. The winged emblem above the throned figure represents Ahura-Mazda, Zoroastrian god of Light. 1 toman and 5 tomans: Part of Darius' palace at Persepolis. Built by the king during the early part of his reign, it became the base for his development of the Persian empire. 75 dinars: Leo and Taurus, the lion and the bull, one of the numerous bas-reliefs found at Persepolis, a favorite Iranian motif and perhaps also an allusion to the signs of the zodiac. 3.75 rials: Another view of the palace at Persepolis; taken from a distance, it shows some of the piers that are still erect. 7.50 rials: The tomb of Cyrus the Great, conqueror of western Asia, at Pasargadae, near Persepolis. 15 rials: Another bas-relief from Persepolis, showing Darius I administering justice from his throne.

—JACK IRWIN APPEL

# ARCHAEOLOGICAL DISCOVERIES BY AIR PHOTOGRAPHY IN ISRAEL

By A. Reifenberg

*Born in Berlin, Professor Reifenberg had two years of combat service with the German infantry in World War I, and in April 1918 was wounded. In 1920 he emigrated to Palestine. In 1924 he took his Ph. D. degree at the University of Giessen, and in the same year he became connected with Hebrew University in Jerusalem.*

*During World War II he served in the British Army with the rank of captain, first as transport officer and later in interpretation of aerial photographs, and was torpedoed off Malta. During the recent Arab War, in 1948-49, he served in the Israel Army with the rank of major. Since 1946 he has been Professor of Soils at Hebrew University.*

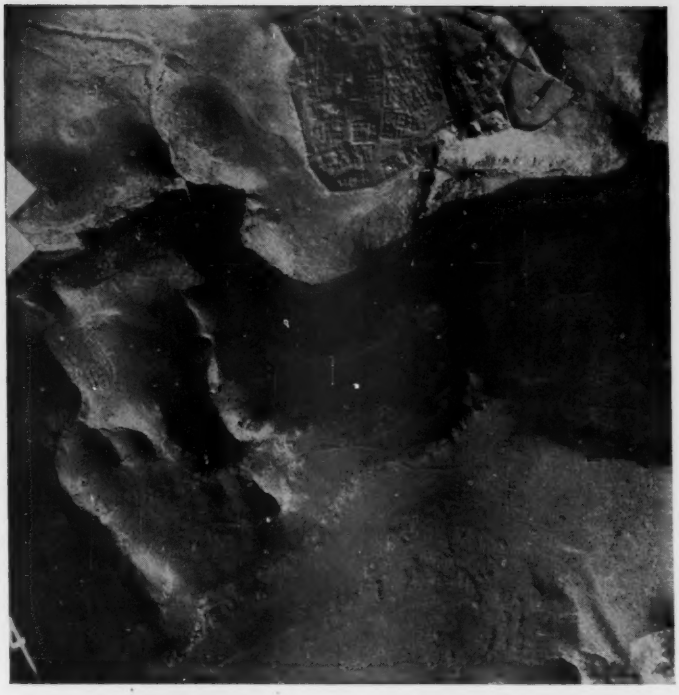
AERIAL PHOTOGRAPHY has become an irreplaceable tool of the archaeologist in recent years. Features which are unrecognizable on the ground are revealed by the aerial camera. This is due to the fact that the photographic film is most sensitive to the slightest changes in shade. Small differences in vegetation due to buried walls, ditching, or any other disturbance of the subsoil, become visible because of the fact that light is absorbed by plant growth, but reflected by smooth surfaces which therefore appear brighter. Small changes in drainage causing differences in plant growth are especially important. At the same time, objects which to the earthbound eye appear irregularly dispersed form themselves into regular patterns when viewed from the air. Elevations, hardly visible on the ground, but easily detected by stereoscopic observation, often reveal ancient sites. Long forgotten roads and paths which have once disturbed soil texture may be detected after hundreds of years by aerial photography.

**1. Tell Dothan, known not only from the Bible, but in Egyptian records as early as the second millennium B.C., was a strategic stronghold in Samaria. Not only the ancient city wall, but foundations of buildings (upper right corner) can be seen in the aerial photograph. Photo: Israel Air Force.**

Israel, quite apart from its absorbing archaeological interest, is a country most suited for aerial photography since the absence of forests and the excellent light conditions make observation relatively easy. Not only the aerial survey undertaken by the Royal Air Force, but also the young air-arm of the Israel Army have opened new vistas for the archaeologist.

Tell Dothan (FIGURE 1), still bearing its ancient name and already known as Tatna to the Egyptians (*c.* 1375 B.C.), shows, on the aerial photograph, not only the line of the ancient city wall, but even the remains of ancient structures.

Kurnub (FIGURE 2), a town in the southern desert of Israel (Negeb), flourished in Roman and Byzantine times. The town with its churches and monasteries was destroyed in the Arab period. Today the ruins, as seen from the surface, represent unrecognizable heaps of stone and rubble. But the aerial photograph reveals the ground plan of the town and the wall enclosing it. (To the right is the modern police station, a very important strategic point in the recent Arab-Israel war.) Even the ruins of Roman water towers can be recognized. To the left the Byzantine dam crossing the summer dry valley is visible. This dam belonged to a system of reservoirs which were built in order to catch the flood waters of winter, and they provided the little town with water. To the right of it a modern concrete dam can be seen and between both dams a dark spot, formed by water which has again collected in the valley. The construction of this dam shows what can be done in the desert by making use of ancient installations!



**2. Kurnub flourished in the Roman and Byzantine periods. In this aerial photograph the plan, walls, and individual buildings can be seen clearly. The enclosure in its east corner is a modern police post, a strategic point in the recent war. At the left (lower pointer) is the ancient Roman dam; a little distance downstream (upper pointer), a modern concrete dam thrown across the wadi has collected a pool of water, visible here as a black spot. Several Roman watchtowers can be seen on the heights overlooking the wadis. Photo: Israel Air Force. Taken November 18, 1948, at 8000′.**

Beth Ter (Bittir, FIGURE 3), the last fortress in the Jewish struggle against the Romans under Bar Cochba (135 A.D.) and in easy reach from Jerusalem, has for many years been a favourite object of study for archaeologists and historians. The walls of the ancient fortress are well preserved and the Roman enceinte, preventing the escape of the defenders, is still traceable. But the camp of the Roman legion beleaguering the fortress has hitherto escaped identification. Here again the aerial photograph has solved the puzzle. Traces of rubble walls, uncorrelated for the visitor on the ground, form themselves, when seen from the air, into two well defined rectangles on FIGURE 3. The legion camps are situated to the southeast of the fortress and cover areas of 300 x 500 and 200 x 300 metres respectively.

Most interesting too is the aerial photograph of Mount Garizim near Nablus.

The town Flavia Neapolis, present-day Nablus, was founded by Titus, in the year 72 A.D., at the place of an unimportant village called Mabortha. Ancient Sichem was situated east of this town near the present-day village of Balata. Near the latter village rises steep Mt. Garizim, with its sanctuary which was much older than the new foundation of Titus. According to Samaritan tradition it was here that the place of sacrifice of Adam, Melchizedek and Jacob was situated. The origin of this cult probably dates back to the year 412 B.C., when the schism between Jews and Samaritans took place. In earlier times, as e.g. in 586 B.C., it had been customary for the Samaritans to make their sacrifices in Jerusalem and even in 520 B.C. they still offered their services for the reconstruction of the temple in Jerusalem.

In 175 B.C. Antiochos Epiphanes introduced the cult of Jupiter Xenios on Garizim, the Seleucid ruler trying to preserve the antique usage of the foreign locality. The local god was simply put on the same level with the Greek god, the Samaritan god was turned into Zeus. This sanctuary of Zeus, built on

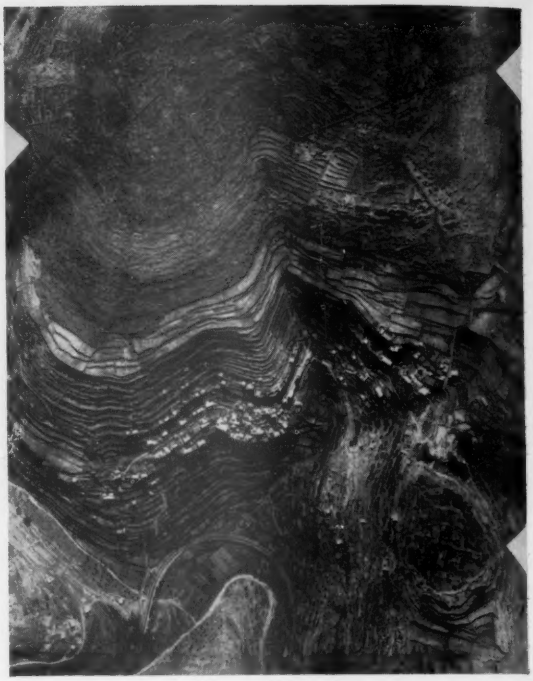
the model of the temple of Jerusalem, was destroyed in 132 B.C. by John Hyrcanus. It seems, however, that the temple on Mt. Garizim was rebuilt later on, since its holy vessels originated a revolt in 36 A.D. When Neapolis was founded in 72 A.D. by Titus, ancient Sichem fell into a village of the new polis, but in dealing with the temple on Mt. Garizim Titus followed the example of the Seleucids, and there was no question of persecuting the Samaritan faith in the One and Only god. The new town adopted the biblical tradition of the country, Jephta's daughter was put on the same footing as Proserpina, and the Samaritan god of Abraham, Isaac, and Jacob became Zeus Hypsistos, the highest god.

Mount Garizim with its temple and altar, as a symbol of the town, appears first on the coinage of Antoninus Pius (FIGURE 4) in the same way as Mons Argaeus appears, e.g. on the coins of Caesarea Cappadociae, and represents undoubtedly the temple built by Hadrian.

The mountain is represented with its two peaks. On the left peak rises the temple, and on the right one the altar on which ancient tradition puts the scene of the sacrifice of the forefathers. At the base of the mountain one sees a colonnade and chapel. A steep staircase leads to the temple and a carriage way leads to both summits, the fork of the road being at three quarters height.

This staircase is still mentioned in 333 by the pilgrim of Bordeaux, who speaks of 300 steps, whereas according to St. Epiphanes and Procopius of Gaza the staircase had 1500 steps, a statement which seems to be much nearer the truth. Under Julian (361-363) the temple must already have been a ruin, since this is the Samaritan High Priest's excuse for having employed its bronze door for the construction of a synagogue down in the valley. When Christendom got the upper hand again the Emperor Zeno transferred Mt. Garizim to the Christians who built a church in honour of the virgin at the place of sacrifice. This church is expressly stated by Procopius and a Samaritan Chronicle to have been a new construction and not the adaptation of a more ancient building. In the time of Justinian this "octagon"-church was surrounded by strong walls and towers.

From the foregoing it follows that when tracing back the history of Mt. Garizim we have always to deal with two distinct localities sharply separated from each other. The one locality is the summit with the temple and the other the summit with the altar, at which in later times the church of Zeno and Justinian was built. In the same way the designer of the coins distinguishes between the two peaks, his position being to the northwest of the mountain. The summit with the temple (Tel er Ras, 830 m. high) and the staircase leading to it is to his left, whereas the summit with the altar and the later church is to the right, near the same spot where the Samaritan sacrifice takes place in our own days.

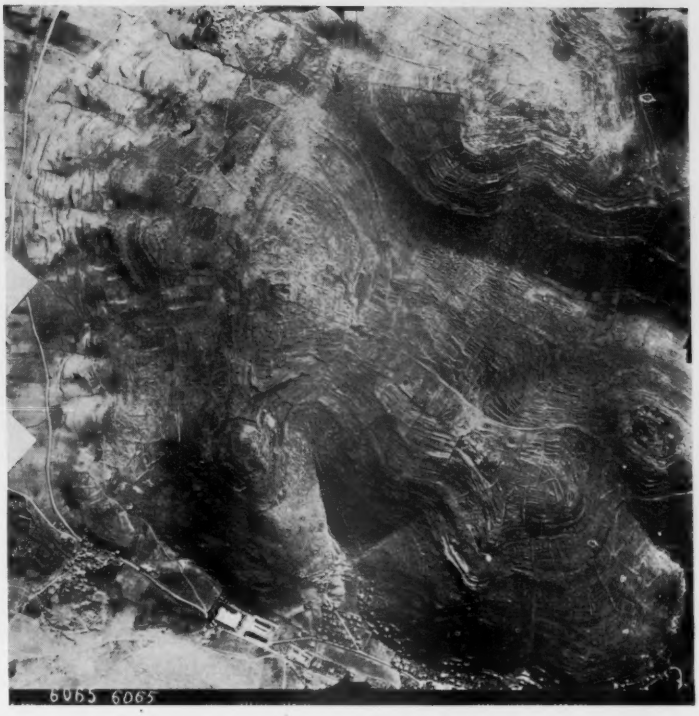


**3. Beth-Ter (Bittir), near Jerusalem, was the last fortress held by the Jews in their war against the Romans (second century A.D.). The fortified hill can be seen at lower right; but this photograph reveals (upper left and right) two Roman camps not previously known. Photo: Air Ministry, London (Crown copyright reserved).**

Both the map and the aerial photograph (FIGURE 5) show that the hill with the altar is slightly (30 metres) higher than the temple-summit, but the latter is nevertheless far more dominating. The descent from the temple-peak is very steep towards east, west and north (about 250 m. above the plain) and only towards the south is this peak connected with the rest of the Garizim massive.

The most astonishing fact, however, is that the aerial photograph clearly shows the traces of most of the features mentioned above. The steep staircase, of which a few steps had been discovered some years before by I. BEN-ZWI, is distinctly discernible. The builders of the staircase had, of course, made use

4. A coin of Flavia Neapolis (Nablus), showing the two peaks of Mt. Garizim, the staircase, the temple, the carriage road, and the Samaritan altar, and at the foot of the slope a colonnade, a chapel, and the date. Compare the aerial view at right.



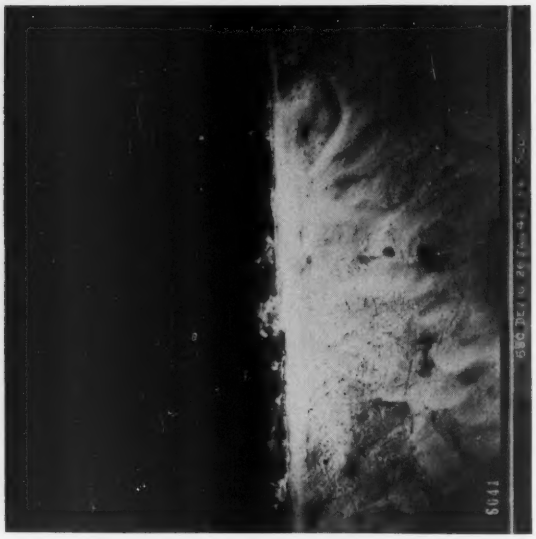

5. The twin-peaked sanctuary of the Samaritans at Mt. Garizim, near Nablus, as seen from 15,000 feet. The starting-point is a cluster of dwellings at the bottom center of the photograph. This is where the artist stood who made the drawing which appears on the Neapolis coin. From here the carriage road, still visible in this picture, led up the side of the gorge. The two peaks, indicated by white pointers, are just to the left of the center of the photograph. The staircase leading up the nearer slope can be traced; the traces of construction visible on the summit are the foundations of the ancient temple. The ruins on the further summit are those of the octagonal Byzantine church, built at the place of the Samaritan altar. Photo: Air Ministry, London (Crown copyright reserved).

of the natural terrace, but the latter are altogether missing half-way up and it is here that the steps are most clear. On the summit one sees the approximately rectangular groundplan of the former temple (or a later fort?) which is approximately 45 x 30 metres (on the aerial photograph). On the other summit of Mt. Garizim can be discerned the ruins of the excavated octagon-church with its surrounding walls and towers, the Christian building which had taken the place of the altar of sacrifice. But even traces of the roadway represented on the coin-picture are still extant. The roadway ascends through the eastern gorge and forks, after having reached the plateau, into two branches, the one leading to the temple and the other to the place of sacrifice.

The temple on Mt. Garizim had already become a ruin in the fourth century, the church was destroyed by the Caliph el Mansour in the eighth century, and the trees covering the mountain on the coin-picture have long become victims of soil erosion; but the aerial photograph is able to uncover the remains of hoary antiquity. The coin-picture, on the other hand, shows us the true-to-nature representation of monuments and landscapes on ancient coins, an illustration of the precision of ancient coin-engravers.

HOWEVER, NOT THE HILL REGION, but the coastal plain too reveals its secrets when seen from the air. Wide stretches of the once fertile coastal plain are today covered by moving sand dunes, as at Ashdod, Ascalon, Jabne, and Caesarea (FIGURES 6-9). These dunes have covered towns, buildings and gardens the existence of which was previously unknown.

FIGURE 6 shows us the almost semicircular wall of the harbour-town of Ashdod of Philistine fame. This harbour-town may have been the "asdudimmu" (Ashdod on the sea) of an Assyrian inscription and is for certain the Azotos Paralios of Roman times. Previously this harbour had been located near a Cru-



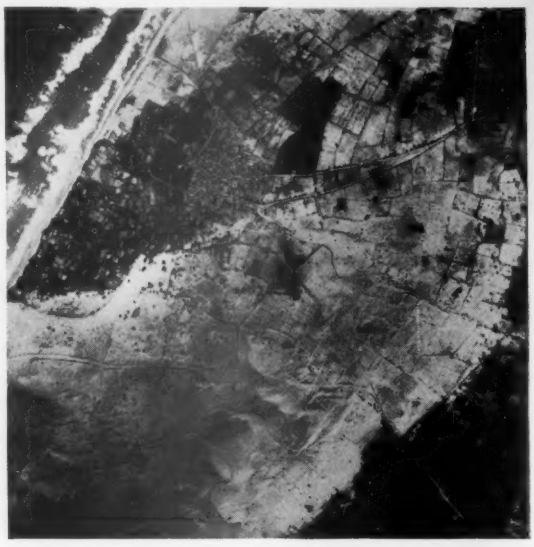
**6. Ashdod's harbour, of Philistine fame, is today fully covered by dune sand and its site was not previously known. The aerial photograph reveals (top) the semicircular city walls and traces of villa and garden plots: Photo: Air Ministry, London (Crown copyright reserved). Taken January 26, 1946, at 5000′.**

sader castle called Minat Asdud, but already ALBRIGHT had pointed out the impossibility of this assumption because of the absence of pre-Hellenistic pottery. The harbour-town we have before us, buried under the sand, is 4.5 kilometers northwest of ancient Ashdod (now the village Isdud) and was situated on cliffs high above the beach. The fact that several of the coastal towns were situated inland and had special harbour-towns (Gaza, Ashdod, Jamnia, etc.) was due to the ever present danger of robberies and invasions from the sea.

The photographs show that there are remains of an ancient tower (?) inside the semicircular walled enclosure, and fields and gardens, buried under the dunes, in the vicinity. The semicircular wall, which can also be observed at Ascalon (FIGURE 7) and Caesarea (FIGURE 9), points to the possibility that all these harbour-towns were built on more ancient foundations by King Herod. The area of this port is about 60,000 sq. m. It was still in use in Crusader times.

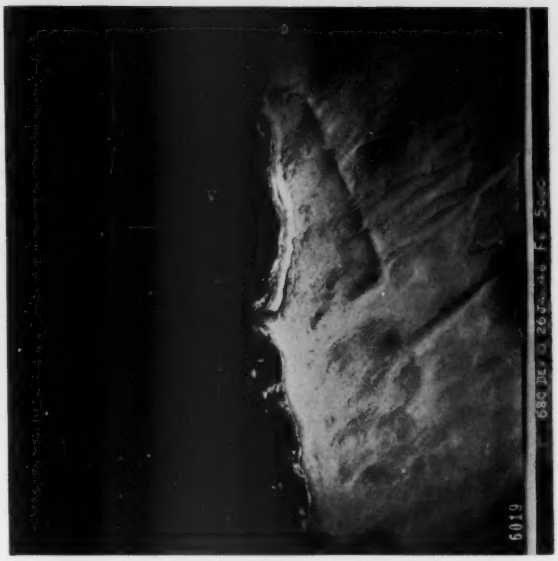
Whereas the city walls of the harbours of Ashdod, Ascalon and Caesarea were semicircular, we can see on FIGURE 8 that the enceinte of Jamnia-harbour, the Jamnitorum Portus of Ptolemy and Talmudic sources, was rectangular. The hitherto unknown position of this harbour is about 2 kilometers south of the present estuary of the Wadi Rubin, and about 8 kilometers northwest of the inland town of Jamnia, present-day Jibna or Jabne. Here again the harbour town was situated high above the cliffs. To the west the harbour was open, but protected by steep cliffs. Rocky elevations in the northwest and southwest had apparently special protecting fortifications. The length of the eastern wall is about 900 metres, showing the great dimensions of this once famous harbour (*c.* 250,000 sq. m.). Adjoining the eastern wall the remains of a rectangular building, 90 x 70 metres, can be seen buried under the sand. Just north of this building might have been a gate, while another one was apparently situated to the south of it. The harbour was to a certain extent protected against the prevailing southwest winds by protruding cliffs in the south.

The region of Caesarea, the once magnificent city with its harbour Sebastos, founded by Herod in 10/9 B.C. at a place formerly called Tower of Straton, is likewise today covered by dune sand (FIGURE 9). This town, where the Roman-Jewish war started, was



**7. The ancient town of Ascalon, with its semicircular city wall embedded in fertile gardens. The dune sand has flowed over the southern part of the city wall, which in Crusader times was still twenty-five feet high. Fields and gardens are menaced by the steadily progressing dunes, a grave concern for agriculture in the young state. Photo: Air Ministry, London (Crown copyright reserved).**

8. The harbour of Jabne or Jibna, the Jamnitorum Portus of Ptolemy, was surrounded not by a semicircular city wall, but by a rectangular one. Only the aerial photograph revealed the ancient site at the water's edge. Photo: Air Ministry, London (Crown copyright reserved). Taken January 26, 1946, at 5000′.



still the Metropolis of Palestina Prima in the third to fifth century A.D. and even flourished in the early Arab and Crusader period, till it was finally destroyed in the thirteenth century. As in the case of the other coastal towns, so at Caesarea has the sand dune preserved the ground plan of the town, and probably many of its buildings, for future generations.

The semicircular wall surrounding the main part of Roman Caesarea with its public buildings is clearly discernible on the photograph (7 on FIGURE 9), but the latter reveals for the first time that the town extended for about two kilometres further southward. This southward extension was apparently made necessary by the increase of the number of its inhabitants. The town was constructed according to plan and regular street courses divided the town into approximately 300 blocks or quarters ("insulae"). Each of these blocks was, as far as can be ascertained from the photograph, about 90 metres long and 50 metres broad. This compares well with insulae found at Dura, which were 100 metres long and 40 metres broad.

The harbour with its installations, so vividly described by Josephus, can easily be recognized (1). The same is true for the now decayed aqueducts

DUNE ENCROACHMENT AT CAESAREA

Dune encroachment is shown by the sand covering up the ancient town with its "insulae," to the left of the photograph (south). The littoral current can be faintly detected near the mouth of the now drained Mefjir river, the silt being transported from south to north along the coast. Photo: Air Ministry, London (Crown copyright reserved).

1. The ancient moles constructed by Herod.
2. The Crusader town.
3. The modern Jewish settlement.
4. The ancient theatre.
5. The ancient hippodrome.
6. The ancient amphitheater, here first revealed.
7. The ancient Roman enceinte.
8. The sanded-up low-level aqueduct.
9. The sanded-up high-level aqueduct, showing erosion to left (south).

which once brought fresh water to the city (8 & 9). The hippodrome (5) and a theatre (4), mentioned by Josephus, have long been known and show likewise clearly on the photograph. But the latter reveals also the hitherto unknown amphitheatre mentioned by Josephus (6). It is situated to the northeast of the Crusader town and its arena is 95 metres long and 62 metres broad, the relative measurements of the Colosseum being 85 and 54 metres. To the east of the arena is a raised platform about 3 metres higher than the present ground. A carriage road led from the platform to the sea shore. Remains of stone benches and an entrance with subterranean passage to the west are detected by ground observation.

The situation of this amphitheatre does not conform to the description of Josephus, who writes as follows: "Besides Herod built a theatre of rock-cut stones in the town and behind it, on the southern side of the harbour, an amphitheatre which was able to accommodate an immense crowd and was so suitably situated that it allowed for a wide view over the sea." Now the building to the south of the harbour was a theatre, not an amphitheatre, as ground observation clearly shows. It seems therefore that this passage in Josephus has to be amended by changing "amphitheatre" to "theatre." This would also meet the postulation that a wide view could be obtained over the sea, which is true for the theatre-site only. Neither from the amphitheatre nor from the hippodrome can such a view be obtained. The mistake can easily be explained by the fact that the word "amphitheatre" occurs first with Dionysius of Halicarnassos, about 30 B.C.

Neither the hippodrome nor the theatre was the place for gladiatorial or wild-beast combat. The place for such contests was the amphitheatre, and since we know that at the inauguration of the town such combats were performed, it is most probable that the new amphitheatre revealed by the photograph is really the one built by Herod. Hundreds of Jewish prisoners of war were killed in gladiatorial and wild beast combats by Titus at Caesarea, and it may be mentioned that animals from India and Ethiopia were still exhibited by the Emperor Maximinus on the occasion of his birthday. In the fourth century, the *ludi circenses* of Caesarea were still famous.

## THE COVER

The picture on the cover of this issue shows the great onyx "Gemma Augustea," the most famous ancient cameo, one of the chief treasures of the Kunsthistorisches Museum, Vienna, on display now and until May 21 at the Metropolitan Museum of Art, New York, as part of a traveling exhibition of Viennese art treasures.

The scene is in two zones. The upper shows a formal triumph of the Roman emperor-to-be Tiberius, who is stepping from his chariot in the presence of Augustus and the goddess Roma. The driver of the chariot is Victory; beside it stands Germanicus. Over Augustus' head sails Capricornus, the constellation of his nativity, and behind him are grouped personifications of earth, sea, and sky. The lower scene shows victorious soldiers erecting a trophy; figures of German prisoners set the stage.

The photograph is reproduced by courtesy of the Metropolitan Museum of Art.

# EARLY ELEVENTH CENTURY BRONZE CASTING

By Francis J. Tschan

*Professor emeritus of Mediaeval History, Pennsylvania State College*

STANDING BESIDE A LARGE BRONZE, ADMIRING IT, its custodian volunteered to inform us that, elaborate as it was, it was all one casting and then went on to expatiate about the difficulties that attended its production. Evidently he had been coached. There was little use in telling him that larger and more elaborately conceived bronzes had been cast by one Bernward of Hildesheim early in the eleventh century. After thanking the good man we went on, recalling the little old lady in charge of the photographic department of a well known art institute who, when we asked her for a reproducible print of the Bernward silver crucifix, observed, "Well, let's see, that would be French art." On that occasion SHAKESPEARE'S apt observation about the human kind in general came to mind.

Bernward was a German, born in the latter half of the tenth century in what was then frontier Saxony. Noble of birth, he became bishop of Hildesheim in 993 and worked there until his death in 1022. The details of his career may be passed over. Suffice it to say that he distinguished himself as a patron of pictorial art, of work in gold and silver which involved also the mounting of precious stones, and also as a builder. In our day, however, he is best known for the bronze doors and column he cast, and it is about how he cast them that this paper is concerned.

The door is of two wings, each 4.72 m. high, 1.15 m. wide and 3.65 cm. thick. On the left wing are depicted in eight reliefs the creation and fall of Adam and Eve, their judgment and expulsion from Paradise, and the story of their children, Cain and Abel—all a single casting. On the right wing are depicted, also in eight reliefs, the atonement of Christ—likewise all a single casting. Lion heads, too, are part of the castings. Only the rings in the lion mouths by which the ponderous wings, each weighing well over a ton, were moved, and the lock, are additions.

If bronze portals were made with reliefs of one piece before Bernward's time, none has come down to the present. There is no mention of any of the technical and other writings of the ancients. Bronze masters were not likely to tell what they knew about their craft, either because it was too complicated to describe in detail or because so much of it was beyond their control. Then, too, an art at once so useful and mysterious was bound to become a family secret carefully guarded from generation to generation. Not many years after Bernward's time a master craftsman, Roger of Helmershausen on the Dreinel, who called himself Theophilus Presbyter, wrote a *Schedula artium diversarum* in which he told almost in cook-book style how artisans of his age went about their work. Theophilus, to be sure, did not say anything about the casting of bronze doors and columns; nor for that matter did Bernward or his biographer. Nevertheless, the present ways of men with the metals together with the examination of antique remains, the observations of classical writers and the *Schedula* make it possible to conjecture how Bernward went about producing his doors and column.

He must have been a man as daring of enterprise in things technical as he was in things artistic, for the difficulties confronting him in casting such mammoth bronzes were formidable. There was first of all the problem of preparing a suitable base on which the modeling could be done. Then followed the preparation of the form with which this modeling was to be impressed, the determining of the metal content of the casting, the building of the furnace in which the ore was to be reduced; the metal refined and properly alloyed, rendered into a liquid state for pouring into the form that had been melted out, the cooling of the mass, and finally—if everything had gone well—the touching-up in which technical and artistic skill were combined as they had been in the modeling.

The base could have been made of the same substance as the mantle that took the impression of the form, because both were subjected to the same conditions in the casting, and were discarded after the

bronze had cooled. Artists modeled the framework and the reliefs most probably in beeswax. That substance had been used by the ancients because it possessed certain advantages over others. Earthy matter mixed with sand, for example, is plastic when moist, but breaks easily on drying. Beeswax commended itself to modelers because it is compact, coheres well even in the thinnest layers, is not too porous, and hardens in a cold state. In this condition, however, beeswax presents an uneven surface and some other undesirable features with respect to the mantle with which it is to be covered.

This mantle, carefully laid on coat by coat until a firm mass had been built up and hardened in the sun or by fire, received the molten metal after the beeswax had been drained off by heating. The specifications of the materials of which this mantle must be composed are exacting. It must be so highly plastic in a moist state that it will reproduce every detail of the model, and hold the form it got from this model free from any modifications consequent upon the heatings required to expel every particle of moisture and to melt out the beeswax. Since the metal is as heavy in a fluid state as it is in the solid, the mantle must also stand up not only under extremely high temperatures (about 1000° C.) but also tremendous weight. Besides being fire-resisting, the mantle must be sufficiently porous to enable the steam and gases generated in the casting process to free themselves. This porosity, however, will also have made it possible for some of the beeswax to soak into its substance. If this residue is not driven off by slowly firing the mantle to white heat and also letting it cool slowly, imperfections will appear in the casting or even cause it to turn out a complete failure.

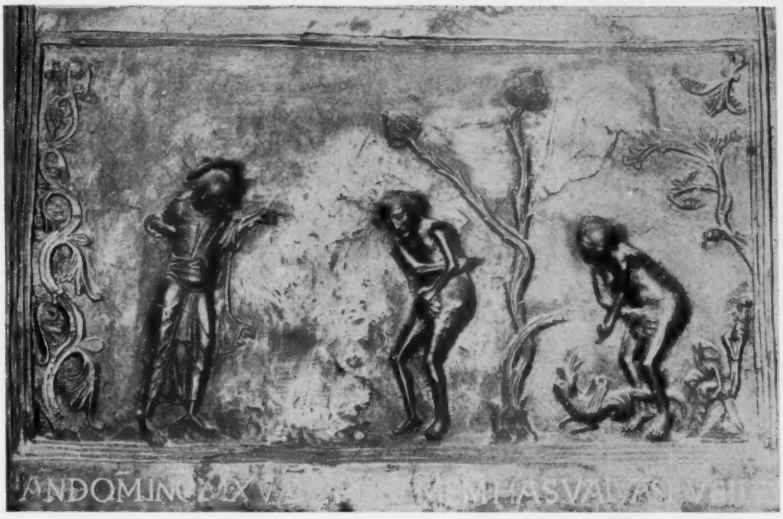
What little is known about the material used by the ancients for their mantles is derived mainly from the imperfectly cleaned interiors of their hollow cast art objects. These remains are generally of clay or its equivalents. But not all clays are suitable for bronze casting and all are hard to transport. Consequently, bronze casting in ancient times must have been limited to regions that had the appropriate clays as well as the required ores. The best clays were derived from rivers in which the loam was naturally combined with sand in, say, the proportion of 85% earthy matter and 15% sand. Such mantle clay was found along the Nile and in Germany, along the Elbe and Saale Rivers, neither of them far from Hildesheim. The craftsman, however, would take no chances even with the most reputable of naturally prepared mixtures. As his experienced sight and touch, assisted by firings and other tests, dictated, he would add to the mantle substance very finely cut calf's hair, the dung of certain animals, and other organic matter.

DIFFICULT AS WERE THE PRELIMINARY STEPS, they were easily matched by those encountered in dealing with the metals themselves. Samplings have been made of the contents of the Bernward doors that show about 77% copper, from eight to eleven per cent lead, seven or eight per cent tin, and the remainder zinc, iron, arsenic, and nickel. Too much reliance, however, may not be placed on these figures. Samplings can be taken from only one or two places and consequently can speak only for those places. Again, no one can tell how much of the metal was re-melted into the content under investigation. Although neither the ancient nor mediaeval peoples could purify their metals perfectly, and they had only crude ways of measuring the quantity of each metal that was to go into the mass in order to produce the desired effect in the contemplated art object, the percentages were not entirely uncontrolled. Guessing, indeed, became an art in which skill was the reward of years of studied practice. There were formulae, as can be seen from a problem posed by Alcuin *ad acuendos juvenes,* the weighing out of metal for a bell by the abbot Gozbert of Tegernsee and from the *Schedula* of Theophilus. Tin and zinc were the preferred alloys. Lead and other metals had a way of getting into the mixture that defied circumvention. Advantages were offset by disadvantages both in the final product and in the furnaces. Copper and lead were near at hand in the Harz and Maas country. In all probability Bernward got his tin in England. Zinc was relatively more plentiful. The other elements came packaged with the ore.

The metal ores collected and weighed out, Bernward could proceed with reducing them. At this point began a new series of problems. There were the furnaces in which the copper ore was to be reduced, alloyed, rendered into a liquid state for pouring into the mold. Theophilus suggests what Bernward's furnace may have been like. Its base was of a fire-resisting, cement-like clay reinforced by iron rods laid crosswise a few inches apart. Its body was of a like fire-resisting, cement-like clay, reinforced by a number of iron bands. Ample provision was made for the admission of air, naturally and also forcibly by means of bellows, even by a battery of bellows. The ore was placed in a furnace of this kind in layers, with layers of charcoal between them. After intense firing the metal liquified; to quote Theophilus, "the lead flows

out through some small cavities and the copper remains within. . . . To this copper thus melted a fifth part of tin is added." Calamine (zinc) previously heat-treated in the ore was also mingled with the copper in the furnace.

The metals thus "refined" were put into crucibles and melted in a furnace like the one used in the reduction process, but adapted somehow to moving the crucibles about and stirring their contents. Forceps were used for the moving, slender irons long and curved and fixed to a wooden handle for stirring.



**Sculptured bronze doors by Bernward, Bishop of Hildesheim: Detail of one panel, showing the Judgment of Adam and Eve. God emphatically points an accusing finger at Adam; Adam, cowering, points awkwardly to Eve as the guilty one; Eve points in turn to the Devil, here shown as a small dragon, whose tongue throws the guilt back at Eve.**

When the metal in the crucibles became fluid, Theophilus directed that it be poured into a "trench dug in the earth."

The stage was now set for the pouring of the metal, a process in which mishaps without number could occur. The re-melting was done in iron pots lined inside and out with clay. About each of the pots was constructed a small furnace of much the same materials as the one already described. Bellows were installed to intensify the firing. When the metal in the pots was liquified the furnaces built about them were broken down and the pots carried to the mold by means of long and strong rods of wood fitted into the handles on the pots. An alternative procedure was a single large pot with a furnace built about it. From this pot a dry piece of wood imbedded in clay was run to the opening of the mold, downward. On this duct burning charcoal was heaped, to keep the metal fluid for pouring. A stop-plug of clay was used to close it.

A study of the actual pouring of Bernward's doors is conditioned by two considerations. Was the mold closed or open?—that is, did the metal enter a chamber between the basic plane of fire-resisting clay and the mantle-mold—in other words, the chamber created by the melting out of the beeswax form? Or, was the plane form discarded and the mantle-mold turned over after the beeswax model had been run off, thus letting the molten metal seek its own level to form the reliefless backs of the doors—an open-mold casting?

If the metal was poured into a closed chamber, gates for its entry and vents for the escape of the steam and gases had to be provided; also "risers" through which to supply final metal; that is, to "feed" the cooling casting. Leading from each of the gates, a system of primary and secondary channels, some large and some small, had to be laid out in the mold, designed to operate in the opposite direction to the vents, for the metal would go down and the steam and gases up. As many as eight, probably more, gates with their connecting channels, and an even greater number of vents, would be required in a bronze of the character and dimensions of a wing of the Bernward doors. Since only a person fully acquainted with the ways of molten metal would know how to lay out these passages strategically, the bronze master had to be on hand, at least for consultation, long before the casting took place.

The alternative or open-mold procedure was simpler. In this way the doors of the Pantheon had been cast. Clay heavily charged with sand was laid down, tamped, and the crossbars put in by wood cut to the desired width and depth. Into this mold the metal was poured and let to seek its own level to form the

back of the doors. Their surfaces, both that formed by the sanded clay mold and that exposed only to the air, would be uneven and rough, but these imperfections could be worked out with chisels and files when the casting had cooled.

**Sculptured bronze column by Bernward of Hildesheim, twelve and a half feet high, containing twenty-four scenes from the life of Christ on a spiral relief fifty feet in length.**

Bernward must have used this open-mold process. Reasons for the surmise are the clear-cut character of the reliefs, the warping of the wings, and relative simplicity of the procedure. Such well defined relief work as is found on the doors could hardly have been obtained unless the metal was poured in full sight, first into the deeper recesses of the mold, then into the immediately related shallower recesses, and so on until a panel had been completely filled. There could have been, of course, no halting in the pouring between panels. Every one of the eight reliefs on each of the wings and the dividing cross-bars and the lion heads had to be cast without stopping. Slag and other impurities in the molten metal would rise to the surface as it flowed from the pouring gate into the mold. Impurities that were not eliminated in this stage would be likely to make their way to the surface as the metal settled into its place. Means of screening its substance before it reached the pouring gate also were known.

WHAT THE BERNWARD CASTINGS LACKED OF the complexity of pouring into a closed mold was more than counterbalanced by the expanse that had to be covered and the delicacy of the figures and the problem of cooling the mass evenly, not too slowly and not too rapidly. Doubtless the pouring was done in a pit that could be covered without resort to earth. Planking carefully laid over the hollow and covered with heavy fabrics could serve the purpose in some degree. Indeed, the whole operation may have been carried out under the protection of a shelter from wind and weather.

When the bronze master was satisfied that the casting had cooled and hardened, the coverings were removed and the mass lifted into the clear. Logical as it would have been then and there to finish and polish the back, it is unthinkable that anyone could wait so long to see how the reliefs had fared. Very carefully the great plate of metal would be turned over to present the fire-harried mantle-mold to the tools of the craftsmen who would remove it. Like the beeswax model, it was now a "lost form." If the defects in the casting proved irremediable, the effort of years was wasted except for the experience that had been gained. One not accustomed to metallurgical art in the raw doubtless would have thought Bernward's pains had been in vain. The relief-filled panels were rough, not unlike the unpictured surface that had been formed in the open. Other offensive features were evident. Chisels

and burins and mallets, however, could work wonders in removing defects. With them and other tools the details of leaves and the hatching of grounds and other niceties, impossible to accomplish in casting, could be added. On the whole the bishop had reason to be satisfied, if not pleased. Imperfect as they were, his doors were as great a triumph technically as they were artistically. His had been the daring idea, though for its realization he had necessarily to depend on others.

The other great bronze cast by Bernward is a hollow column 3.79 m. high and 0.58 m. in diameter, weighing about 7.7 tons. Its circumference may be computed as 1.82 m. A band of reliefs 0.45 m. wide runs a spiral about the shaft approximately eight times from right to left. This ribbon of pictures, calculated to be from 15.02 to 15.78 m. long, is, like the paneled reliefs of the doors, of one piece with the shaft. Twenty-four scenes representing twenty-eight episodes associated with the life of Christ from His baptism to His entry into Jerusalem are portrayed on the spiral. Bernward provided the storied column with a separately cast base of which enough is left to give rise to several conjectures as to what the top piece, also a separate casting and now lost, must have been like. Quite certainly this top piece had been surmounted by a cross, thus making the column a monument to Christ.

The success which attended the production of the doors must have confirmed Bernward in the resolution to produce the column. The experience he had gained, furthermore, must have strengthened him in this resolution. Very soon, however, he must have realized that modeling and casting the column called for some changes in procedure. Common to the two bronzes were the melting out of the beeswax form, the composition of the metals, the furnaces, the cooling and the touching-up of the casting. Little if any change, too, needed to be made in the composition of the forms. The modeling on a curved surface concerned the artist more than the technician. Only the preparation of the basic core and the pouring of the molten bronze required revision.

The preparation of the basic core would be conditioned to some extent by the method chosen for the pouring of the molten metal, whether the form built up for the casting would be in an horizontal position or a vertical position. In either case there would be required a wooden or metal pole a foot or two longer than the shaft of the column in order to facilitate the manipulation of the piece. This pole, resting securely on supports at its ends or rigidly fixed in an upright position as convenience in modeling and casting dictated, was covered with loam to a thickness of four or five inches. Upon this cylindrical core beeswax was packed to an all-around depth of two or three inches, sufficient to give the column the desired diameter. On the surface of this wax coating the spiral band was marked off and its reliefs modeled in preparation for

**Sculptured bronze column by Bernward: two details of the spiral relief. Above, Salome dances to the music of a piper, and a servant presents the head of John the Baptist to Herod and his queen, seated at table. Below, a mission of disciples, and a group of Samaritan women.**

the application of the mantle that was to take the impression of the picturing.

Before this mantle or negative mold was laid on, rods of metal capable of standing up under the weight and heat of the liquified metal were driven through the wax into the basic core. Outwardly these rods projected far enough to admit of their being firmly embedded in the negative mold. Since these rods necessarily would leave their marks on the casting, their placing would be determined with a view not only to holding the negative mantle rigidly in position with reference to the basic core during the pouring process, but also with reference to the configuration of the reliefs. The picturing might be marred if the traces left by the rods could not be touched up

effectively. Gates with connecting channels had to be provided in the outer mold for the inpour and even distribution of the molten metal; and vents also to enable the steam and the gases generated in the pouring to escape. Like the rods these gates with their connecting channels and vents had to be placed not only where they would function most effectively in the pouring process but also where any traces they would leave on the casting could be readily effaced.

When the mantle, the negative of the reliefs, had been carefully applied layer by layer about the rods and vents upon the waxen reliefs, the whole—core, wax and mantle—was fired slowly to a white heat and then allowed to cool even more slowly. Every precaution had to be taken that not the slightest particle of wax had entered the pores of the negative mold in the course of its being melted out. Into the void left by the wax form the molten metal was poured, not too slowly, not too rapidly, through the gates if the column was to be cast in an horizontal position. Figuratively speaking, however, the gates would act, like the rods and vents, as so many marplots. Moreover, there had to be many gates in the casting of a column the shaft of which was to be over twelve feet high. Bringing the extremely hot metal to the gates would prove difficult as well as hazardous. Indeed, it is hard to see how a battery of furnaces with all their cumbersome appurtenances and ducts could be arranged to assure sufficient, constant and even pouring. The casting necessarily would have to be done in a pit or on a wind-protected hillside previously got in readiness for quick filling to make sure of slow cooling.

If rods and vents could not very well be dispensed with, gates and their connecting channels fortunately could be eliminated if the columnar structure were set straight upright. The liquid bronze could then be poured from the top into the void left by the beeswax. Care would have to be taken, of course, to direct the stream of metal down along the core. Possibly, too, the whole framework could be turned slowly in the direction of the spiral of reliefs in order to assure an even flow of the molten bronze and to spare the pictured negative on the inner surface of the mantle. In the consideration of this method of casting the artist of the reliefs may have been told to model more conservatively than had been the wont of the artists who did the door panels.

There was, however, a simpler way of pouring the liquid metal, a way by which it was possible also to eliminate the rods. Instead of building up the loam core about a solid pole of wood or metal, a pipe, whether round or any other shape the workers of Bernward's day could give it, would be introduced, down which the molten metal could be poured. Provision would be made at the base of this pipe to let the liquid flow out and rise in the void left when the beeswax form was expelled. The rods might be dispensed with if means of holding the core and the negative mold rigidly in position with reference to each other could be devised. This *desideratum* could be secured easily enough by solidly pivoting the parts and packing the earth of the pit or building up the hillside firmly about the mantle. Burying the columnar structure, so to speak, also would help to keep the metal perfectly molten as it was pouring and assure the slower cooling of the mass. The stand of the metal in the inpour pipe likewise would keep the bronze rising in the void left by the extraction of the beeswax form from soldifying too rapidly. And, what ultimately would be most desirable, there would be little or no injury done the delicate relief negative. Very probably Bernward chose this method of casting the column because the picturing on it is remarkably well defined and apparently touched up very little; certainly, much more slightly than would have been necessary had rods and gates with their connecting channels been brought into play.

Bernward doubtless was inspired to produce the doors and the column by antique works of the kind he had seen when he was in Rome early in 1001. On the doors of the fifth century church of Santa Sabina on the Aventine were doors of cypress wood with metal reliefs attached to them. In the city were the columns celebrating the warlike deeds of the emperors Trajan and Marcus Aurelius. It was six or seven years after this visit to the southland before he began work on the doors. They could not have been finished before 1015. Since there could not have been room in the Bernward workshops for the production of both bronzes at the same time, work on the column probably commenced in 1015. Both the doors and the column were intended for the church of Saint Michael which he built on a hill top outside the Hildesheim of his time. Both were installed in that church before or soon after he died.

Not long after his death the doors were moved to the cathedral, where they remained until the destructive bombings of the last war prompted their being taken to safer quarters. The column, after many vicissitudes, also found its way into the cathedral, whence it also was removed for safe-keeping when the war broke upon Germany. The precautions taken to save the bronzes were justified; Saint Michael's church and the cathedral are now ruins.

# *Noctes Hellenicae*

*HAPPY the man or old or young*
*Who is not bitten or yet stung,*
*Who sleeps serene in every bed,*
*Nor knows what creatures he has fed.*
*He is a man who can in peace*
*Go travelling in Modern Greece.*

*ABOUT Hellenic lands I went*
*On Archaeology intent;*
*But at the same time learned to look*
*For things that are not in the book.*

*At seven-gated Thebes I stayed,*
*And there my modest couch was laid*
*With one poor blanket and no more*
*Between me and the stony floor.*
*It was a hot town once, I'm told,*
*But now 'tis most uncommon cold,*
*And I arose, when dawn was red,*
*From what I quaintly called my bed,*
*To dress myself as best I might*
*In the first beams of morning light.*

*BUT Thebes, although a town accursed,*
*For sleep is really not the worst.*
*I would recall the high renown*

*Of Sparta's celebrated town.*
*There, in the noble days of yore,*
*When man's first business was to war,*
*They held that comfort was a sin—*
*A view they have persisted in.*
*What was our joy and our surprise*
*When there appeared before our eyes*

*Those lovely canopies of white,*
*Mosquito-netting for the night.*
*Our joy was tragically short;*
*T'was but a cruel Spartan sport.*
*For, once we were within the cage,*
*Defiant of the monster's rage,*
*Large, airy holes appeared to view,*
*To let the horrid creatures through.*
*As so the weary night we spent*
*With one hand out and ready bent*
*To slap the inoffensive ear*
*When the mosquito came too near.*
*And if by day we tried to snatch*
*The sleep that midnight would not catch,*
*The flies assumed unseemly poses*
*On our eyebrows and our noses.*

*After one Spartan night we see*
*Their cause for taciturnity;*
*For there, whatever one finds out,*
*One doesn't care to talk about.*

NOW *Kalamata is a spot*
*That seems quite pleasant and is not.*
*For revelry by night is there,*
*Whenever they elect a mayor.*
*The winning party drives about,*
*And shouts as loud as it can shout.*
*The losers talk by twos and threes*
*In high Hellenic blasphemies.*
*Just as one party stops its din,*
*The other turns up to get in*
*A few select nocturnal licks*
*For the sweet sake of politics.*

*Oft have I pondered with regret*
*The things I cannot now forget,*
*Such as the multitude of fleas*

*That made me bless Cleomenes,*
*Or how Olympic dogs delight*
*To bark at nothing all the night,*
*Or how the voice that used to make*
*The worshippers at Delphi quake*
*Has given place to the worst scream*
*That ever came from steel and steam.*

BUT *these be trifling things and few,*
*And hardly worth referring to,*

*Compared with the variety*
*Of joys of Pyrgos by the sea.*
*Oh, night of nights! when there we stayed—*
*Was ever such another made?*
*O, Muse, assist me now to tell*
*The prodigies that there befell.*
*Now one afar the mattress flings*
*And sleeps in peril on the springs,*
*And now another seeks the floor*
*When he can stand the bed no more,*
*Hoping to lie in solitude,*
*Although the couch be hard and rude;*
*Till with a sad surprise he finds*
*He has no more than changed the kinds.*

*Hark! What was that prodigious noise?*
*'Tis one that violence employs;*
*The bed is tilted up and so*
*Savagely shaken to and fro,*
*And then, to make the job complete,*
*A careful shaking of the sheet,*
*And vicious trampling underfoot*
*Of that which might be called the loot.*
*One with a candle sharply looks*

*Into the dim secluded nooks,*
*And prisons all that can be seen*
*In little drops of paraffin,*

*And so, like flies in amber caught,*
*These decorations strangely wrought*
*In gay profusion overspread*
*The otherwise unlovely bed.*

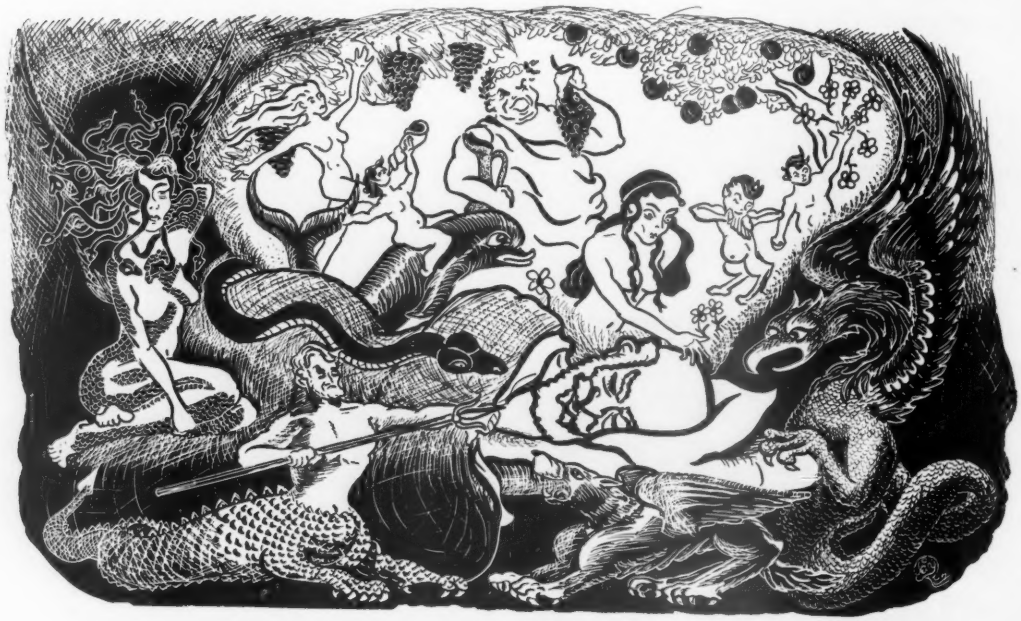
*Here one abandons the attempt*
*And rises, weary and unkempt,*
*Dressing in darkness and despair,*
*And somewhat vagrant as to hair,*
*To sit beneath the single light*
*That makes the hall so gay by night,*
*And, drawing forth a mighty tome,*
*Proceeds to make himself at home,*
*Until, at three o'clock or so,*
*The lights grow dim and out they go.*
*Then he creeps down the shrieking stair*
*To walk about the village square,*
*And see the stars look coldly down*
*Disdainful on the silent town.*
*See, from an upper window high,*
*A figure leans forth furtively,*
*And once and twice and yet again*
*He shakes the sheets with might and main.*

*But ah! how vain is all our toil;*

*'Tis but our tempers that we spoil.*
*Impervious to shakes and blows*
*The endless legion of our foes;*
*And skill and passion naught avail*
*To hold the line where Keating's fails.*
*So solitary watch we keep*
*Who have resigned the thought of sleep,*
*Until the happy moment comes*
*When on the door the landlord drums,*
*And with determined smiles we go*
*To the dark dining room below,*
*Surprised and pleased, as we arrive,*
*To find the others yet alive.*
*Then, with more joy than one can tell*
*Pyrgos, six thousand times farewell.*

## ENVOI

*NOW hail and three times hail to thee,*
*Thou model of immunity.*
*For one of us there is who knows*
*No portion of our nightly woes.*
*While we imperil life and limb,*
*Our troubles are all Greek to him.*
*He journeys through the sacred land,*
*Angelic guards on every hand,*
*And trials and tribulations cease*
*As soon as he arrives in Greece.*
*For him the sun perpetual shines*
*On endless olives, oaks, and pines;*
*Of pure Castalian dew he tells,*
*And finds it in the lowliest wells,*
*Who never at the victuals balks,*
*A friend of every cheese that walks.*
*But this the chiefest of his powers,*
*To spend the happy midnight hours*
*In dreams of innocent delight,*
*While through the demon-haunted night*
*The powers of darkness rage unseen.*
*They rage in vain. He sleeps serene,*
*Our own inviolable Dean.*



The author of this lesser epic, now a respected professor at a respectable seaboard university, has consented to its immortalization in these pages, but not to his identification with it. Written a quarter-century ago, it does not purport fairly to depict conditions in 1950.

The "inviolable Dean" was WALTER MILLER of the University of Missouri. The illustrations are by JAY GLÜCK.

# ARCHAEOLOGICAL NEWS

*Jerusalem Museum*

One of the preoccupations of archaeologists generally, during the Israel-Arab war, was the fate of Mr. JOHN D. ROCKEFELLER, JR.'S gift, the Palestine Archaeological Museum in Jerusalem. The British High Commissioner, before he left, had issued an Order in Council creating an international Board of Trustees to administer the Museum in the spirit of the donor; but the order remained unimplemented.

The improving political situation has now made it possible to set up the Board of Trustees, which had its first meeting at Amman, Jordan, on December 12. JAMES L. KELSO of Pittsburgh-Xenia Theological Seminary, currently Director of the American School of Oriental Research in Jerusalem, was elected president; KENNETH W. CLARK, Annual Professor, was designated representative of the ARCHAEOLOGICAL INSTITUTE OF AMERICA; and G. LANKESTER HARDING, Chief Curator of the Jordan Department of Antiquities, was appointed Acting Curator; organizations concerned will be invited to nominate candidates for the permanent curatorship.

The Museum sustained considerable war damage but the archaeological exhibits have recently been opened to the public; the library and other departments will remain closed for the present.

*Book of Lamech*

A Harvard University press release of January 14, 1950, tells of the difficulties which Fogg Museum technicians expect will surround the unrolling of the still-unopened fourth Dead Sea (Ain Fashkha) scroll, believed to contain the Book of Lamech. A report on the physical condition of the scroll, by RUTHERFORD J. GETTENS, Chief of Technical Research in the Fogg Museum, contains so much of archaeological interest that we transcribe it *in extenso:*

The fourth Dead Sea scroll is a slightly flattened cylindrical object 31.5 cm. long and 5.5 cm. wide at its widest part. It is apparently of brown dried and brittle leather, tightly rolled into about 20 turns. The surface of the scroll, which has the appearance of a dried cigar, is corrugated and crevassed, especially near the ends. When received at the Fogg Museum the first and outer layer had already been peeled off and two separate pieces bearing writing (one 20.5 x 11.5 cm. and the other 6.0 x 4.5 cm.) had been flattened and mounted between glass.

At one end of the roll four or five layers of outer leather have been cracked off and lost and here are revealed light cream-colored inner layers which are thinner than the outer brown layer, and these may be of parchment. It is possible that there are two scrolls—a parchment scroll rolled up in a leather one. The outer brown leather, however, is not just wrapping; it bears the writing that can be seen on the already separated fragments. It is still to be learned whether the inner white layers are really a separate scroll.

From these mounted fragments it can be seen that the inscription is penned in a dark ink on ruled lines about 7 mm. apart. In places the ink apparently has eaten into and through the leather and it is this effect which causes most of the corrugations and fissures. The inscription is written in columns (pages) in lines parallel to the lengthwise direction.

The side where the inner light-colored layers are seen is the one most damaged by time. That is probably the side on which the object rested during its long stay in the cave. The opposite side is smoother and less corrugated. The main damage here seems to be along the lines of writing.

In the middle, along the more damaged side, where several layers are revealed, it was found that there is fair cleavage between layers. Where broken edges of leather occur on this side one can insert a thin spatula and lift back flaps of the outer layer of the good side half way around the scroll. The two ends of the scroll appear to be in a more decomposed state than the middle. There the leather is thoroughly hardened and black, and although the individual layers can be identified, they seem to be completely welded together. On one end the edges are flared out and separated like petals of an open flower. The innermost roll is about 1 cm. in diameter. There is still an open hole clear through the center through which light can be seen.

There is practically no foreign material on the scroll, no sand or dirt. Also there is no evidence of pitch or asphalt. (Pitch has been reported on other materials from the same cave.)

When the scroll was first brought to the Fogg Museum, in April 1949, for brief examination, a few detached finger-nail-sized fragments were left for experimentation. From these small fragments a considerable amount of information on the behavior and properties of the old leather was gleaned.

During its long existence the leather, especially near the ends, has become almost completely gelatinized. Although it contains some fibrous structure, it breaks with a glassy fracture like glue. In fact it is glue. The better preserved leather near the center breaks with a bearded fracture. The more highly gelatinized portions are nearly completely soluble in cold water. Even when exposed to an atmosphere saturated with water vapor it liquifies and flows. At 75 percent relative humidity the fragments become pliable, but sticky. In the range 50-60 percent relative humidity it is moderately pliable, but not too sticky, and that seems to be the best range to attempt unrolling operations. The gelatinized portions are permanently darkened when wet with water. The light brown and cream middle and inner layers are much less affected.

The principal question now is—what are the chances that the scroll can be unrolled? After careful study of the all-over condition and be-

havior of the fragments it is felt that the central portion of the scroll can be opened and the inscription read. The main difficulty will be the unrolling at the ends and indeed that may be impossible. It is possible that the unrolling of the middle can be done only at the sacrifice of the ends especially if it is certain that there is no inscription here. It is hoped that that will not be the case.

*South Arabian Expedition*

WENDELL PHILLIPS, leader of the well publicized California African expedition of 1948, is in the news again, this time as president of the recently formed American Foundation for the Study of Man and as director of an AFSM expedition which sailed on December 22, 1949, from Brooklyn for Aden and Mukalla on the Gulf of Aden, where they intend to set up a base for the exploration of the archaeologically virgin interior of Southern Arabia. Accompanying Mr. PHILLIPS are WILLIAM F. ALBRIGHT of the Johns Hopkins University, ranking U. S. Biblical archaeologist, ALEXANDER HONEYMAN, of St. Andrews University, Scotland, and a dozen other scholars and technicians; and the expedition will have the services of an airplane, fifteen desert cars, and other appropriate equipment.

*Two Questions*

If you saw the Odyssey
Growing on a cherry-tree,
Then you would inquire of me,
"Who composed this poetry?"
Now it's in the Library,
You've the face to answer me,
"Who composed it? Nobody."
Clever little cherry-tree.

—D. H.

*Herbert E. Winlock, 1884-1950*

HERBERT EUSTIS WINLOCK, Harvard graduate, Egyptologist, and former (1932-39) director of the Metropolitan Museum of Art, whose archaeological reports were "scholarly yet so lucid and lively as to make interesting reading for laymen," died in Venice, Florida, on January 6, 1950.

*Frank G. Speck, 1881-1950*

FRANK GOULDSMITH SPECK, Brooklyn-born archaeologist, sociologist, anthropology professor at the University of Pennsylvania, expert on North American Indian ethnology, linguist, editor, and prolific writer on anthropological and related subjects (his *The Midwinter Rites of the Cayuga Long House* was just published in December), died in Philadelphia on February 6, 1950.

*Coin Room at Harvard*

The Fogg Museum of Art of Harvard University, we are informed by GEORGE M. A. HANFMANN, has established a Coin Room with CORNELIUS VERMEULE, III, as volunteer assistant in charge. The collections of the Museum include the Edward P. Bliss Bequest of Greek and Roman coins, and the George Davis Chase Collection, presented to the Museum in 1942. A collection of ancient, mediaeval, and modern coins and medals, previously located in Widener Library, has also been deposited in the new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Coin Room. The present holdings of the new numismatic unit consist principally of Roman Imperial coins.

*Archeologia Classica*

We have recently received Volume 1, No. 1, of *Archeologia Classica*, edited by GIULIO A. GIGLIOLI and MASSIMO PALLOTTINO of the Archaeological Institute of the University of Rome. This first number contains formal papers on problems of classical archaeology by MARGHERITA GUARDUCCI, GIORGIO GULLINI, ACHILLE ADRIANI, and BIANCA MARIA FELLETTI MAJ, book reviews, shorter notes and discussions, and twenty-four pages of illustrations.

It is planned to publish two numbers a year. Annual subscription, including foreign postage, is $6.00. The editorial and business offices are at the Instituto di Archeologia, Università degli Studi, Rome, Italy.

*Antiquity*

One result of the recent adjustment in the dollar value of the British pound is that annual subscriptions to *Antiquity* now cost $3.00. With one possible exception, this is the best archaeological investment you can make. Subcriptions should be addressed to:

Antiquity (H. W. Edwards),
The Wharf,
Newbury, Berks,
England

*Emergency in Texas*

More than 60 old Indian habitation sites scattered over nearly 300 square miles are being explored this winter on the site to be flooded by the Whitney Reservoir, on the Brazos River north of Waco, Texas. This work is being carried on as a joint project of the Smithsonian Institution, the National Park Service, and the Army Engineers, and is expected to throw much light on the little-known prehistory of central Texas.

A preliminary survey has shown that the area was inhabited for a long time before historic tribes made first contacts with white settlers. Before them there was a scattering of Jumanos, best known in western Texas and New Mexico. Preceding these peoples, however, were a long succession of early hunters, who are almost unknown to anthropologists. Excavation work will be in charge of ROBERT L. STEPHENSON, archaeologist of the Smithsonian Institution's River Basin Surveys staff.

Later in the season excavation projects will be carried out along the Missouri River, mostly in old village sites. Three projects will be started along the Columbia River and two in California. All these areas eventually will be flooded by the building of reservoirs, and the Indian sites will be lost to science forever.

*Healey Film*

GILES GREVILLE HEALEY'S forty-minute documentary film in color, "The Maya through the Ages," produced and presented by the United Fruit Company, has appeared and is available for showings before local societies. It shows the sites, arts, and crafts of the ancient Maya Indians and their living descendants. For a by-product of Mr. HEALEY'S adventures in Middle America, see pages 12-15 above.

*Carbon 14*

Scattered reports have told of the apparent success of the $C^{14}$ method of dating artifacts, on which Professor


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was founded in Boston in 1925 and incorporated under the laws of the Commonwealth of Massachusetts "to conduct, encourage, promote and support research, publication, and instruction in mediaeval records, literature, languages, arts, archaeology, history, philosophy, science, life and all other aspects of mediaeval civilization by publications, by research, and by such other means as may be desirable, and to hold property for such purpose." Membership in the Academy is open to all persons interested in mediaeval studies.

SPECULUM, published quarterly by the Mediaeval Academy of America since 1926, presents articles and reviews concerned with mediaeval architecture, armor, fine arts, geography, heraldry, law, literature, music, numismatics, philosophy, science, social and economic institutions of the Middle Ages. Each number normally has 150 pages of text.

THE MEDIAEVAL ACADEMY OF AMERICA

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W. F. LIBBY, of the Institute for Nuclear Studies at the University of Chicago, and his colleagues, have been working. This method is based on the fact that certain substances containing carbon contain a predictable proportion of the radioactive isotope Carbon 14. Since the half-life of Carbon 14 is 5,500 years, i.e., since half of the radioactive atoms originally present will have disappeared in that period, determination of the present $C^{14}$ content of an artifact provides a fairly reliable measure of the age of the artifact, correct in the case of artifacts of early-dynastic Egypt and Sumer, for example, to about 250 years.

We are advised that least one commercial laboratory is equipped and staffed to carry out $C^{14}$ analyses of archaeological materials. By the standards of most archaeological budgets, single analyses are fairly expensive. Archaeologists interested may request further information and estimates from Radiation Counter Laboratories, Inc., 1844 West 21st Street, Chicago 8, Illinois.

*Prehistoric Congress I*

The first International Congress of Mediterranean Prehistory and Protohistory is to be held this spring in Italy, opening in Florence on April 18, moving to Naples on April 26, and closing in Rome on May 2. Enquiries may be addressed to the Secretary of the Congress at Via del Proconsolo, 12, Florence, Italy.

*Classical Conference I*

The first Congress of the Fédération Internationale des Associations d'Études Classiques, or International Federation of Classical Associations (FIAEC or IFCA?), will also be held in 1950; it is scheduled for August 28—September 3, in Paris. Enquiries may be addressed to the General Secretary, Professor A. DAIN, 42, Rue de Dantzig, Paris XV$^{e}$.

*Linguists*

The 1950 Linguistic Institute, held these years at the University of Michigan, will run from June 26 to August 18. Archaeologists who find the paths of progress blocked by linguistic deficiencies will have an opportunity to brush up on such illuminating languages as Hittite, Old Persian, Sanskrit, Gothic, Chinese, and English, as well as the comparative grammar of Semitic and comparative grammar of Indo-European.

The director of the Institute is HANS KURATH, who may be addressed at 5208 Angell Hall, University of Michigan, Ann Arbor, Michigan.

*National Trust*

The President signed, in October, a bill creating a National Trust for Historic Preservation in the United States, analogous to the National Trust in Britain. An educational, charitable, and non-profit-making corporation, sponsored by the National Park Service of the Department of the Interior and vigorously advocated by the National Council for Historic Sites and Buildings, the Trust is empowered to receive and administer for the public benefit such buildings and sites worthy of permanent preservation as may be presented to it, and, in concert with the NCHSB, will encourage on every level public participation in the preservation of sites, buildings, and objects of national significance or interest.


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# BRIEF NOTICES OF RECENT BOOKS

**Mycenae: An Archaeological History and Guide**, by ALAN J. B. WACE. xviii, 150 pages, 35 maps and drawings, 75 pages of plates. Princeton University Press, Princeton 1949 $15.00

Mycenae has remained the most famous city of the prehistoric Greek world, a city whose brilliant civilization is reflected in the poems of Homer and is excellently illustrated in the remains brought to light by excavators. Its life-story begins with the Early Bronze Age (*ca.* 2500 B.C.), mounts in interest as the centuries roll on, reaches a climax in the second half of the second millennium (1500-1100 B.C.)—known after it as the Mycenaean Age—only to be lost in the dark centuries which followed the Dorian Invasion, *ca.* 1100 B.C. In the historic era, Mycenae experienced a brief moment of glory when its contingent fought the Persian invaders at Thermopylae and at Plataea. It finally succumbed to the jealousy of its neighbors from Argos in 468 B.C. Its ruins, still guarded by the lions over its main gate, remained neglected until Greece became again an independent kingdom in 1833.

Shortly afterwards the fame and ruins of Mycenae attracted to its exploration the legendary SCHLIEMANN, whose discoveries beyond the Lions' Gate actually opened up the Greek prehistoric field. SCHLIEMANN'S successes were followed by the methodical researches of CHRISTOS TSOUNTAS and the brilliant and enlightening work of the British School of Archaeology at Athens headed by Dr. WACE. Indeed, the city was fortunate in its explorers, for they represent the best workers in the field of archaeological research. Slowly but certainly the great city has been resurrected and the story of her life and greatness as well as of her resurrection is contained in the present volume.

The remains of Mycenae—its settlements, its graves, the fortifications including the famous Lions' Gate, the great palace, the temple, the houses in its citadel—are described, documented, and illustrated in a masterful way. The excellent descriptions are followed by a brief but lucid discussion of the Mycenaean civilization and of the problems still at issue. The thorny question of the date of the Treasury of Atreus—a question that has become so important for the understanding of Minoan-Mycenaean relations—is studied again in an appendix and its date *ca.* 1330 B.C. is finally established.

The book, a model of its kind, will be enthusiastically received both by the layman and the specialist and will prove of immense value to both in spite of its format that makes it impossible to use as a guidebook at the site. The material included in it has appeared before in various excavation reports, but here for the first time it has been arranged so as to give a consecutive story that is complete and at the same time simple and inspiring. Perhaps some of the specialists will not agree with the author in the dates assigned to the various periods of the Bronze Age, and especially to its beginning, but that too is immaterial since the sequence of cultural developments as stated is well established.

The reviewer wishes to emphasize especially the great service rendered to archaeology by our author in writing the story of Mycenae in a form that can be appreciated by the non-specialist, by the schoolteacher, and by the interested layman. More monographs of this type are needed and must be written by our leading scholars, if we want to keep and to increase the interest of the general public in archaeology. Meanwhile WACE'S *Mycenae* will remain a *ktêma es aei* that must find its way into every library, and a model to be followed by those who will attempt to write the story of other famous sites of the Greek world.

G. E. M.

**The Lures of the Bronze Age.** An archaeological, technical and musicological investigation, by H. C. BROHOLM, WILLIAM P. LARSEN and GODTFRED SKJERNE. 129 pages, 36 figures in text, 3 tables, 30 plates. Gyldendalske Boghandel, Copenhagen 1949 $12.50

For scholars and laymen whose interests vary from primitive rites, to early forms of music, to bronze casting and ornamentation, this new publication will prove of great interest. No radically new material is introduced concerning the Bronze Age lures, but known facts are reinvestigated, many fallacious myths that have grown up around these Scandinavian instruments are weeded out, and a much more realistic consideration of their nature is given.

Mr. BROHOLM studies the lures from an archaeological point of view. He describes them as cone-shaped wind instruments manufactured by casting, wound either to the left or the right, with rattle appendages attached to the tube just below the mouthpiece. Each of the forty-nine lures known, dating from 1100 to 600 B.C., is fully described and illustrated.

Mr. LARSEN investigates the lures from the standpoint of bronze casting. He finds that they are formed of several tubular sections, delicately joined together to prevent breaking and also to keep air from escaping while being played; the *cire perdue* technique used in casting is of a very high degree of perfection.

Since the lures are the only extant representatives of tone instruments known from the Bronze Age, they are of great interest to musicologists. GODTFRED SKJERNE, assisted by musicians of high quality, conducted scientific testings and recordings of twelve of the lures from the point of view of natural pitch. Mr. SKJERNE shows very convincingly that the making of the lures was guided by the eye and sense for design. He does not find from their tubes or mouthpieces an indication of complicated acoustical calculations. Thus the Nordic instrument making, rather than being highly developed, as was formerly believed, was actually quite arbitrary. Many of the lures found are in pairs and are identical in design, except for opposite direction of winding. But here again, if there is any similarity in tone it comes from the similarity of shape and not, as some claim, from musical pairing. Mr. SKJERNE feels that the likeness of the pairs is the result of the Norsemen's desire for symmetry or an imitation of the horns of an animal (also seen in

their war helmets). He clears away all the ludicrous ideas that the pairs of lures indicate a beginning of organum or even polyphony, and states conclusively that the only possible musical connection between the pairs is that they were played at the same time.

The evidence put forth by archaeologist BROHOLM and musicologist SKJERNE is in complete coordination as to the most probable use of the lures. Traditionally the lures have been thought of as war trumpets, carried in battle and blown for signals and stimulation. But because of their precarious balance they would be too unwieldy on the battlefield. Also, they are never found buried with warriors along with other war implements, but rather they are found unbroken in bogs and moors beside human and animal remains. This seems to attest the fact that they were cult instruments, used at scenes of sacrifice and then buried with the animal and human remains in the hallowed ground to escape profanation. Contemporary rock engravings point to the validity of this statement. The small bronze rattle appendages also seem to have had ritualistic purpose in attracting the attention of gods or frightening away evil spirits. Thus the lures were probably used at cult services and processions, playing long cultic fanfares and figures to enhance the demonic quality of the service.

In *The Lures of the Bronze Age* much well-known material is treated with radical reality and a great degree of exactitude. The three specialists, while expounding their own investigations and conclusions, reinforce each other's theories. Their evidence is clearly presented and is enhanced by excellent charts, figures and plates.

MARILYN ARONBERG
*Washington University*

**Catalogue of Classical Bronze Sculpture in the Walters Art Gallery,** by DOROTHY KENT HILL. xxxviii, 158 pages, 56 plates. Walters Art Gallery, Baltimore 1949

This catalogue comprises 289 items, including four that are regarded as forgeries. All except two were acquired before the death of Mr. HENRY WALTERS. The first ten pieces, though mostly fragmentary, are life-size or near it; the rest are small. Each piece is shown in a photograph; apparently only one (no. 146) appears in two views, one of them the frontispiece. The earlier Greek periods are meagrely represented; most of the things are Hellenistic or Roman; several are Etruscan. A "Celtic Zeus" (no. 22), an archaistic Athena (no. 188), and two female figurines (nos. 237 and 239) have been considerably discussed, and a few other pieces have some bibliography, but the collection is largely unpublished. An Athena of the fifth century (no. 185) and three Hellenistic figures (nos. 104, 146, 176) are among the more notable statuettes. An Amazon (no. 236) can hardly be believed Greek. It might be modern, it might perhaps be Italic. The author notes that "the upper eyelid extends over the lower at the outer corner," and this feature, which can be seen in the illustration, would surely preclude a date earlier than 475 B.C. In subject and type the collection possesses abundant variety and the publication is well worth while, though when it is stated (page ix) that the objects in the catalogue "are of unique quality," the word "unique" is apparently equivalent to "grand."

Miss HILL's Introduction is chiefly a summary of fairly recent studies of the technique of ancient bronze sculpture, and may well be useful to serious students remote from libraries. The uninstructed reader will not learn from it that most statuettes are cast solid, which may be considered the primary technical fact about them. (In the catalogue some pieces are described as hollow, and probably it is to be understood that the rest are solid.) Each piece is described carefully, with some discussion; despite an extensive "List of Works Cited" (pages 129-142), the discussions are not pretentious. The author is cautious in dating, and that is commendable. The book is well made and printed.

F. P. JOHNSON
*University of Chicago*

**Ancient Man in North America,** by H. M. WORMINGTON. Third Edition. 198 pages, 21 ills. Denver Museum of Natural History, Denever 1949 $2.50

Man *is* ancient in North America—and from Miss WORMINGTON'S pen flows the fascinating story which the archaeologist has to tell about the earliest humans to set foot on this continent of ours. The ever-intriguing questions of when, how, and from where man first came to the New World are dealt with in a thoroughly competent manner, and the author's lucid style makes for easy reading of material which is at the same time both complex and incomplete.

The earliest people to inhabit North America probably lived in small groups wandering from place to place in search of the game which provided a large portion of their food supply. This was supplemented by wild fruits, nuts, berries, roots, and the like, which could be gathered at will. The records these primitive people have left for us are scanty, but bit by bit the story unfolds. There are two main types of evidence for the existence of man in the New World at an early time: cultural and skeletal. Many of the old camp sites and caves which were inhabited by these people have been found and Miss WORMINGTON discusses them and describes for us the spear points, stone scrapers, grinding stones, and other cultural materials which have been found in them. She also gives us some insight into the way in which the age of the sites is determined. Folsom, Lindenmeier, Gypsum Cave, and Sandia are but a few of the stations included in the present volume.

Physical remains of the ancient Americans have also been found and here again the author gives a very complete, up-to-date discussion of these skeletal finds. We learn how the early Americans differ from and are similar to the more modern American Indian physical types. Many authenticated discoveries such as the Minnesota Man, the Sauk Valley Man, and the recently discovered Tepexpan Man are discussed, as well as a number of fraudulent finds such as the Calaveras skull found in California in mid-nineteenth century and made famous by BRET HARTE'S poem. The text is supplemented by a glossary of terms, a bibliography, an index, and an appendix by the celebrated geologist, ERNST ANTEVS, in which he discusses the geology of the Clovis sites in New Mexico.

This little volume, excellently organized and very readable, will be welcomed by the non-professional reader who can now satisfy his curios-

ity about America's earliest men without having to consult numerous highly technical papers in which much of the knowledge of the subject is hidden.

VIRGINIA WATSON
*Washington University*

**Primitive War: Its Practice and Concepts**, by HARRY HOLBERT TURNEY-HIGH. xi, 277 pages. University of South Carolina Press, Columbia 1949 $4.50

According to the author, little has been done by way of understanding war among nonliterate peoples. He therefore proposes a comparative treatment of the complex, basing his generalizations on the available monographic literature of primitive tribes and a few classical sources. At the same time he warns against the innate dangers of such a piece of work. First, the other patterns with which warfare is connected must be considered; second, the study must not force the data into some arbitrary developmental scheme, such as "stages"; and third, we must beware of value judgements, particularly those pro the nonliterate group as described by the field anthropologist. TURNEY-HIGH himself is scarcely guilty of the last fault, being quick to lay about such primitives as have "incompetent" modes of war. (In fact, he sometimes gives the impression of being, besides a former cavalry officer, an ethnocentric one.) At any rate, the violence of most primitive peoples against others, he concludes, does not deserve the name "war," properly speaking.

War is essentially social (discipline, planning, command, etc.) and not technological (weapons, armor, fortifications, etc.); it is "man's oldest and most successful social science," and one which—scientifically—has been reduced to a few simple principles. It is against these principles that the practices of primitives and semi-primitives all over the world are measured, including Eurasia. Most of the really primitive fall short of true war in one respect or another. Basically, "the military horizon is one of social organization and has next to nothing to do with the state of weapons" (page 23). It depends, in the author's view, more upon the conditions of discipline, command, formations, planning and objectives, and adequate use of terrain, fire power, contact, and the like. In the final analysis, how a society measures up in these respects is a question of its complexity of social organization.

Roughly speaking, the more primitive, the less civilized, the less state- or tribe-like, the less the probability of true war and not merely "murder," "ceremonial head hunting," "athletic contests," "feud," or "vendetta." Thus most of the American aborigines outside of the centers of high culture come off poorly, in radical contrast to the Zulu and many West African tribes. Especially does the author disparage the Melanesians, and the Americans of the Plains he sneeringly calls "counters of coup," fighters but not soldiers. Yet he opines that some of the Polynesians could comfortably have crushed Homer's heroes.

The book is divided into two parts, the practice and the concepts. The first part is the technical, military-textbook consideration. The second deals with the socio-psychological and economic motives of war, military values and attitudes regarding fear, death, and bloodletting, and war as it bears upon the organization of society. In the second part the author seems less the condescending old soldier, sarcastically referring to the plight of people who foolishly ignore the principles of war; he is more the serious scholar trying to bring the study of war back into its important but, he feels, badly neglected place in the social sciences. For no good reason that the reviewer can see, TURNEY-HIGH neglects all published comparative treatments of war or aspects of it such as those of FRIEDERICI, WRIGHT, and DAVIE.

JAMES B. WATSON
*Washington University*

**Guides to Peru: 1) Lima (31 pages); 2) Cuzco (32 pages); 3) Sacsahuaman (16 pages); 4) Machu Picchu (33 pages)**, by VICTOR W. VON HAGEN. Frederick Farnam Associates Inc., New York 1949

Writing guide-books for centers that flourished for centuries is a task the size of which only those who have attempted to write will appreciate. And when the lifespan of these centers is filled with exciting details important not only to the archaeologist and the historian but also to the average visitor, the task assumes Herculean proportions. Lima, the city built by FRANCISCO PIZARRO in 1535, Cuzco, the oldest city of the New World, the capital of the Empire of the Incas, Sacsahuaman, the most formidable fortress of Prehistoric America, and Machu Picchu, the Lost City of the Incas, with its granite architecture and magnificent location, are such centers, filled with interesting monuments and ruins, steeped in romantic legends, replete with history and at the same time endowed with natural beauty that can find few parallels.

To write short guides for such centers requires exceptional ability; in our author they have found their worthy chronicler. His great knowledge of the country, its past and its present, his keen appreciation of historic and artistic values, and his clear, concise but graphic style, have enabled VON HAGEN to give us in a few pages an intimate, accurate and exciting account of these centers of South American culture. His story is illustrated with magnificent photographs and simple but accurate plans and contains sufficient information to give the visitor guidance to enjoy his visit thoroughly, and to the arm-chair tourist a keen desire to visit the great centers of Peru.

In a few words, these are model guide-books composed by a scholar and a lover of Peru, who is continuing with enthusiasm the American tradition in Peruvian studies initiated by PRESCOTT and BINGHAM. We await with anticipation the announced publication of the guides to other great centers of Peruvian antiquities. G. E. M.

# NEW BOOKS

Selected at the editorial offices from various sources, including bibliographical publications, publishers' announcements, and books received. Prices have not been confirmed.

ALBRIGHT, W. F. The Archaeology of Palestine. 271 pages, ill. Penguin Books, London 1949 2s. 6d.

ALDRED, CYRIL. Old Kingdom Art in Ancient Egypt. 40 pages, 71 plates. Alec Tiranti, London 1949 6s.

AMBURGER, ELENI-ALEXANDRA. Athene und Heracles in der Kunst der Antike. ix, 180 pages. Privately printed, Berlin 1949 (Diss.)

AMSDEN, CHARLES AVERY. Prehistoric Southwesterners from Basket Maker to Pueblo, with an introduction by ALFRED V. KIDDER. xiv, 163 pages, 46 figures in text, 39 plates, 2 maps. Southwest Museum, Los Angeles 1949

ARGENTI, PHILIP PANDLEY, and HERBERT JENNINGS ROSE. The Folk-lore of Chios. 2 vols. 1223 pages, ill., maps. Cambridge University Press, New York 1949 $25.00

ARKELL, A. J. Early Khartoum; an account of the excavation of an early occupation site carried out by the Sudan Government Antiquities Service in 1944-5. xvi, 145 pages, 12 figures in text, 113 plates. Oxford University Press, London 1949 £5.5s.

AURIGEMMA, SALVATORE. Villa Adriana. Hadrian's Villa Near Tivoli. Translation from the Italian revised by A. W. VAN BUREN, with eleven engravings by LUIGI ROSSINI and a plan drafted by the Rome School of Engineers. 45 pages. Chicca, Tivoli 1949

BURKITT, M. C. The Old Stone Age: a study of paleolithic times. 2nd ed. 254 pages, ill. Cambridge University Press, New York 1949 $2.75

BUSCHOR, ERNST. Das hellenistische Bildnis. 70 pages, ill. Biederstein, Munich 1949 11.50 M

CAGIANO DE AZEVEDO, M. Il gusto nel restauro delle opere d'arte antiche. 101 pages, 4 plates. Olympus, Rome 1948 500 l.

CAPART, JEAN. Pour faire aimer l'art égyptien. 77 pages, ill. Fondation Égyptologique Reine Élisabeth, Brussels 1949

DAVIS, ROBERT TYLER. Native Arts of the Pacific Northwest; from the Rasmussen Collection of the Portland Art Museum. 165 pages, ill. Stanford University Press, Stanford 1949 (Stanford Art Series, 1) $7.50

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HAMILTON, R. W. The Structural History of the Aqsa Mosque; a record of the archaeological gleanings from the repairs of 1938-1942. 116 pages. Oxford University Press, New York 1949 $7.00

KÄHLER, HEINZ. Das griechische Metopenbild. 111 pages, 96 plates. Münchner Verlag, Munich 1949 19.50 M

KING, DALE S. Nalakihu; excavations at a Pueblo III site on Wupatki National Monument, Arizona. 183 pages, ill., map. Museum of Northern Arizona, Flagstaff 1949 (Museum of Northern Arizona, bull. no. 23) $4.00

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MONTGOMERY, ROSS GORDON, WATSON SMITH, and JOHN OTIS BREW. Franciscan Awatovi. The excavation and conjectural reconstruction of a 17th-century Spanish mission establishment at a Hopi Indian town in Northeastern Arizona. With an appendix by J. FRANKLIN EWING. xxiv, 361 pages, frontispiece, 62 figures. Peabody Museum, Cambridge 1949 (Reports of the Awatovi Expedition, Peabody Museum, Harvard University, Report No. 3—Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. XXXVI) Paper: $5.85; cloth: $8.35

MUNSTERBERG, HUGO. A Short History of Chinese Art. 241 pages, ill. Philosophical Library, New York 1949 $5.00

NEUBURG, FREDERIC. Glass in Antiquity. 72 pages. Art Trade Press, London 1949 30s.

RICHTER, GISELA MARIE AUGUSTA. Archaic Greek Art against its historical background; a survey. 251 pages, ill., map. Oxford University Press, New York 1949 $12.50

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THOMAS, F. W. Nam; an ancient language of the Sino-Tibetan borderland. 48 pages, ill., maps. Oxford University Press, New York 1949

WARD-PERKINS, J. B. The Italian Element in Late Roman and Early Mediaeval Architecture. 32 pages, ill. Oxford University Press, London 1949 7s. 6d.

WETHEY, HAROLD EDWIN. Colonial Architecture and Sculpture in Peru. xvii, 330 pages, 1 + 366 illustrations, end-paper map. Harvard University Press, Cambridge 1949 $12.50

*WORMINGTON, H. M. Ancient Man in North America. 3rd ed. 198 pages, 21 ills. Denver Museum of Natural History, Denver 1949 $2.50

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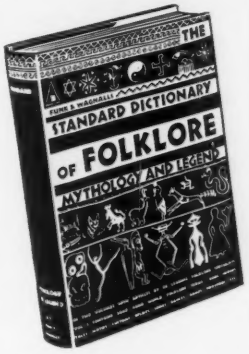


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